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Design	Miniature format	Compact format, CENELEC EN50047	
	Metal, pre-cabled	Plastic, 1 cable entry	Plastic, 2 cable entries



Enclosure	Metal		Plastic, double insulated
Modularity	Head, body and connection modularity		Head, body and cable entry modularity
Conformity/Certifications	UL, CSA, CCC, GOST		CENELEC EN 50047 UL, CSA, CCC, GOST
Body dimensions (w x h x d) in inches (mm)	1.2 x 2 x 0.6 (30 x 50 x 16)		1.2 x 2.6 x 1.2 (31 x 65 x 30)
Head	Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional Same heads for ranges XCMD, XCKD, XCKP and XCKT		2.3 x 2 x 1.2 (58 x 51 x 30)
Contact blocks	2 electrically separate contacts		•
	snap action with positive opening operation		•
2 same polarity contacts	slow break with positive opening operation		•
	snap action		–
3 electrically separate contacts	slow break		–
	snap action with positive opening operation		•
4 electrically separate contacts	slow break with positive opening operation		•
	snap action with positive opening operation		•
4 contacts (2 x 2 same polarity contacts)	slow break with positive opening operation		–
	snap action		–
Degree of protection IP/IK	IP 66, IP 67, IP 68, IK 06		IP 66, IP 67, IK 04
Operating temperature	–4°F to +158°F (–20°C to +70°C)		
Connection	Screw terminals		–
	Pre-cabled		1 entry for ISO M16 or M20, Pg 11, Pg 13.5 cable gland or 1/2" NPT, PF 1/2
	Connector		2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adapter)
Type catalog number	XCMD		XCKP
Pages	6/14		6/34 and 6/38

Compact format, CENELEC EN50047		Compact format, with reset	
Metal, 1 cable entry	Plastic, 1 cable entry	Plastic, 2 cable entries	Metal, 1 cable entry



Metal	Plastic, double insulated		Metal
Head, body and connection modularity	–		
CENELEC EN 50047 UL, CSA, CCC, GOST	UL, CSA, GOST		
1.2 x 2.6 x 1.2 (31 x 65 x 30)	1.2 x 2.6 x 1.2 (31 x 65 x 30)	2.3 x 2 x 1.2 (58 x 51 x 30)	1.2 x 2.6 x 1.2 (31 x 65 x 30)
Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional Same heads for ranges XCMD, XCKD, XCKP and XCKT	Linear movement (plunger) Rotary movement (lever)		
●	●	●	●
●	●	●	●
–	–	–	–
–	–	–	–
●	–	–	–
●	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
IP 66, IP 67, IK 06	IP 66, IP 67, IK 04 and IK06 (for XCDR)		
- 4°F to + 158°F (- 20°C to + 70°C)			
1 entry for ISO M16 or M20, Pg 11, Pg 13.5 cable gland or 1/2" NPT, PF 1/2	1 entry for ISO M20 or Pg 13.5 cable gland or 1/2" NPT	2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adapter)	1 entry for ISO M20 or Pg 13.5 cable gland or 1/2" NPT
–			
M12	–		
XCKD	XCPR	XCTR	XCDR
6/40 and 6/44	6/56	6/60	6/58

Limit switches

OsiSense® XC Standard

Design	“Classic” format		EN 50041 format	Industrial EN50041 format
	Metal, 3 cable entries	Metal, 1 cable entry	Plastic, 1 cable entry	Metal, 1 cable entry or connector
				
Enclosure	Metal		Plastic, double insulated	Metal
Modularity	Head, body and operator modularity			
Conformity/Certifications	UL, CSA, CCC (XCKM), GOST		CENELEC EN 50041 UL, CSA, CCC, GOST	
Body dimensions (w x h x d) in inches (mm)	2.5 x 2.5 x 1.2 (63 x 64 x 30)	2 x 2.8 x 1.2 (52 x 72 x 30)	1.6 x 2.9 x 1.4 (40 x 72.5 x 36)	1.6 x 3 x 1.7 (40 x 77 x 44) 1.7 x 3.3 x 1.4 (42.5 x 84 x 36)
Head	Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional			
Contact blocks	• • • • • • • •			
	– – – • – – – –			
2 electrically separate contacts	• • • • • • • •			
2 same polarity contacts	– – – • – – – –			
3 electrically separate contacts	• • • • • • • •			
4 electrically separate contacts	– – – – – – – –			
4 contacts (2 x 2 same polarity contacts)	– – • • – – • •			
Degree of protection IP/IK	IP 66, IK 06		IP 65, IK 03	IP 66, IK 07
Operating temperature	- 4°F to + 158°F (- 20°C to + 70°C)			- 4°F to + 158°F (- 20°C to + 70°C) - 40°F to + 248°F (- 40°C or + 120°C) depending on model
Connection	3 tapped entries for ISO M20 or Pg 11 cable gland, or 1/2" NPT with adapter 1 entry tapped Pg 11 incorporating cable gland or 1 entry tapped 1/2" NPT 1 entry for ISO M20 or Pg 13.5 cable gland 1 entry for ISO M20 or Pg 13.5 cable gland or 1/2" NPT			
Connector	–			Integral M12 or 7/8"-16UN
Type catalog number	XCKM	XCKL	XCKS	XCKJ
Pages	6/76	6/76	6/92	6/102

Limit switches

OsiSense XC Basic

Miniature format	Compact format EN 50047		Compact format, with reset knob	
Plastic, pre-cabled	Plastic, 1 cable entry	Plastic, 2 cable entries	Plastic, 1 cable entry	Plastic, 2 cable entries



Plastic, double insulated	Plastic, double insulated			
—				
UL, CSA, CCC, GOST	CENELEC EN 50047 UL, CSA, CCC, GOST		UL, CSA, CCC, GOST	
1.2 x 2 x 0.6 (30 x 50 x 16)	1.2 x 2.6 x 1.2 (31 x 65 x 30)	2.3 x 2 x 1.2 (59 x 51 x 30)	1.2 x 2.6 x 1.2 (31 x 65 x 30)	2.3 x 2 x 1.2 (59 x 51 x 30)
Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional				
●	●	●	●	●
—	●	●	●	●
—	—	—		—
—	—	●	—	●
—	●	—	●	—
—	●	—	●	—
—	—	—		—
—	—	—		—
—	—	—		—
IP 65, IK 04				
- 4°F to + 158°F (- 20°C to + 70°C)				
—	1 entry for ISO M20 or Pg 11 cable gland Other cable entries: ISO M16 x 1.5	2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adapter)	1 entry for ISO M20 or Pg 11 cable gland Other cable entries: ISO M16 x 1.5	2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adapter)
Ø 7.5 PvR, CEI, halogen free, depending on model	—			
XCMN	XCKN	XCNT	XCNR	XCNTR
6/30	6/64	6/66	6/72	6/72

6

Design/Applications	Very severe material handling applications	For hoisting and material handling applications (XCR); for conveyor belt shift monitoring (XCRT)	For hoisting and material handling applications	Subminiature format and microswitch. Applications requiring high precision and a low operating force
	Metal, 3 cable entries	Metal or polyester, 1 cable entry	Metal, 3 cable entries	Plastic, pre-cabled



Enclosure	Metal	Metal or polyester	Metal	Polyester
Features	—	—	—	—
Conformity/Certifications	CSA, GOST	CSA (XCR) CCC (XCR), GOST	—	CE, UL
Body dimensions (w x h x d) in inches (mm)	3 x 3.3 1.7 (77 x 83 x 44)	3.3 x 3.7 x 3 (85 x 95 x 75)	4.6 x 3 x 2.3 (118 x 77 x 59)	Depending on type
Head	Linear movement (plunger)	Rotary movement (lever)		—
Contact blocks	2 electrically separate contacts			
	snap action with positive opening operation	—	—	—
	slow break with positive opening operation	•	—	—
	2 same polarity contacts			
	snap action	—	—	•
	slow break	•	—	—
	3 electrically separate contacts			
	snap action with positive opening operation	—	—	—
	slow break with positive opening operation	—	—	—
	4 electrically separate contacts			
	snap action with positive opening operation	—	•	—
	slow break with positive opening operation	—	•	—
	4 contacts (2 x 2 same polarity contacts), snap action	—	•	—
Degree of protection IP/IK	IP 65	IP54, IP54S or IP 65 depending on model	IP 66, IP 66S	IP 67 or IP 40 depending on model IP 00 (tags)
Operating temperature	- 4°F to + 158°F (- 20°C to + 70°C)			
Connection				
Screw terminals (entry for cable gland)	3 tapped entries for Pg 13.5 cable gland	1 tapped entry for Pg 13.5 cable gland	3 tapped entries for Pg 13.5 cable gland or tapped M20 x 1.5	Tag connections or pre-wired depending on model
Pre-cabled	—	—	—	—
Connector	—	—	—	—
Type catalog number	XC1AC	XCR XCRT	XCKMR	XEP
Pages	6/130	6/136	6/144	6/146, 6/148, 6/162

Safety limit switches and safety interlock switches Preventa XCS								
Standard		With lever or hinge	Actuator operated			Rectangular format with solenoid interlocking		Non-contact safety interlocks
Miniature format	Compact format	Compact format	Miniature format	Compact format	Industrial format with or without locking			Rectangular or cylindrical format
Metal, pre-cabled	Metal or plastic, 1 cable entry	Plastic, 1 or 2 cable entries	Plastic, pre-cabled	Plastic, 1 or 2 cable entries	Metal, 1 cable entry	Metal, 2 cable entries or plastic, 1 cable entry		Non-contact safety interlock system, pre-cabled or connector
					Without locking	With locking, manual unlocking		



Metal	Metal or plastic	Plastic, double insulated	Plastic, double insulated		Metal	Metal	Plastic, double insulated	Plastic
—	—	—	—	—	—	—	—	—
UL, CSA, GOST	—	UL, CSA, GOST	UL, CSA	UL, CSA, GOST	UL, CSA, GOST	UL, CSA, GOST	—	CE, UL, CSA, TÜV, GOST depending on model
1.2 x 2 x 0.6 (30 x 50 x 16)	1.3 x 2.6 x 1.3 (34 x 65 x 34.5)	Depending on type	1.2 x 3.1 x 0.6 (30 x 78 x 15)	1.2 x 3.7 x 1.2 (30 x 93 x 30) 2 x 4.5 x 1.2 (52 x 114 x 30)	1.6 x 2.4 x 1.7 (40 x 60 x 44)	3.9 x 5.7 x 1.7 (98 x 146 x 44) 4.3 x 3.7 x 1.3 (110 x 93.5 x 33)	—	Depending on type
Linear movement (plunger) or rotary movement (lever)	—	Rotary movement (lever)	Turret head		Turret head	Turret head	—	—
—	—	—	—	•	—	—	—	Depending on model
—	—	•	•	—	—	—	•	—
—	—	—	—	•	—	—	—	—
—	—	•	•	—	—	—	•	—
•	—	•	—	•	—	—	—	—
•	—	•	•	—	•	•	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
•	—	—	—	—	—	—	—	—
IP 66, IP 67 IP 68 (XCS M) IK 06 (XCS M & XCS D) IK 04 (XCSP)	—	IP 67	IP 67	—	IP 67	IP 67	—	IP 66, IP 67 IP 69K depending on model
- 13°F to + 158°F (- 25°C to + 70°C)								
XCS P and XCS D: 1 entry for Pg 13.5 or M20 cable gland or 1/2" NPT		Depending on model: 1 or 2 entries for Pg 13.5 or ISO M20 cable gland or 1/2" NPT	Depending on model: 1 or 2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT		1 entry for ISO M20 or Pg 13.5 cable gland or 1/2" NPT	Depending on model: 1 or 2 entries for Pg 13.5 or ISO M20 cable gland or 1/2" NPT		—
XCS M: Ø 7.5 cable, PvR		—	XCS MP: Ø 7.5 cable, PvR		—	—		PVC cable
—		—	—		—	—		Remote M8, remote M12 or integral M12 depending on model
XCSM	XCSP XCSD	XCSPL, XCSPR XCSTL, XCSTR	XCSMP	XCSPA XCSTA	XCSA	XCSB XCSC	XCSE XCSL	XCSTE XCS DM/C/P/R XCS DM3/4
6/254, 6/258	—	6/264	6/274, 6/280	—	6/268	—	6/282	6/302, 6/314

Limit switches

OsiSense® XC

Variable composition: simplicity through innovation

Principle

Variable composition principle

■ The Miniature design XCMD and Compact design XCKD, XCKP and XCKT ranges benefit from the variable composition concept.

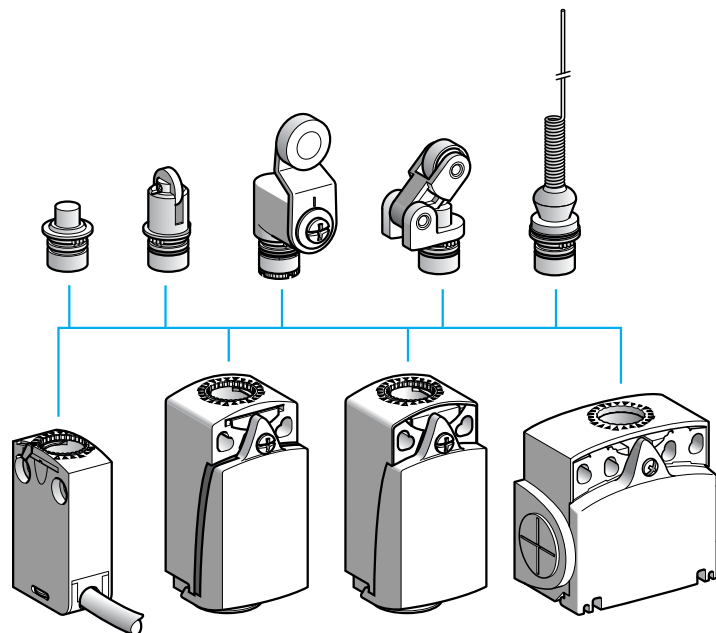
■ A worldwide detection first for improving productivity.

A complete offer for resolving the most commonly encountered detection problems:

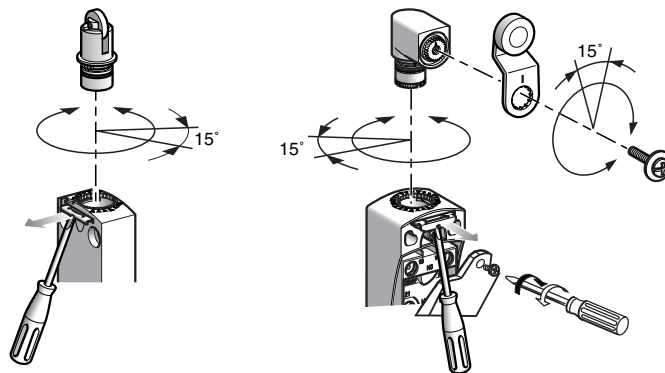
- product selection simplified,
- product availability simplified,
- installation and setup simplified,
- maintenance simplified.

Heads

■ A single metal operating head type for the Miniature design XCMD and Compact design XCKD, XCKP and XCKT ranges.



- Interchanging of heads achieved by simple operation of forked metal latch.
- Adjustable in 2 planes:



All the heads can be adjusted in 15° steps throughout 360°, in relation to the body.

All the levers can be adjusted in 15° steps throughout 360°, in relation to the horizontal axis of the head.

Limit switches

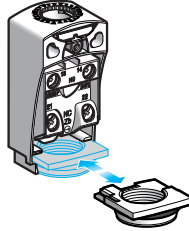
OsiSense® XC

Variable composition: simplicity through innovation

Principle (continued)

Cable entries

- The cable entries for Compact design XCKD and XCKP switches enable:
 - simple cabling due to unrestricted access to contacts,



- simple adaptation to the various worldwide markets:
 - 6 models are available:



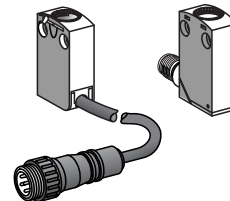
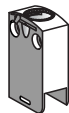
- ISO M16 x 1.5
- Pg 11



- ISO M20 x 1.5
- Pg 13.5
- 1/2" NPT
- PF 1/2 (G 1/2)

Each model is available in metal or plastic, respectively suited to Compact design XCKD and XCKP.

Connection components

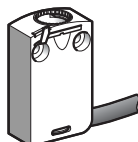
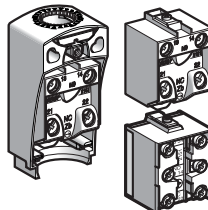


- The miniature XCMD range allows interchanging of these pre-cabled connection components:
 - 1/4 of a turn is all that is required for removing the connection component on XCMD bodies with 2 and 3 contacts,
 - 6 cable lengths are available.

- The miniature XCMD range includes an integral or remote connector solution.

6

Contact block or bodies with contact



- 2 and 3 snap action and slow break contact blocks, with positive opening operation, are interchangeable between the Compact design XCKD and XCKP and Classic XCKJ, XCKS, XCKM and XCKL ranges.

- For the Miniature design XCMD range, the contacts are an integral part of the body:
 - 2 and 3 snap action and slow break contacts, with positive opening operation, and interchangeable connection component,
 - 4 snap action contacts, with positive opening operation, with monolithic body and connection components.

Limit switches

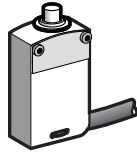
Safety limit switches

Miniature design, metal, type XCSM

XCSM
pre-cabled

With head for linear movement (plunger). Mounting by the body

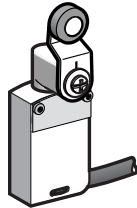
520576



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With head for rotary movement (lever). Mounting by the body

520577

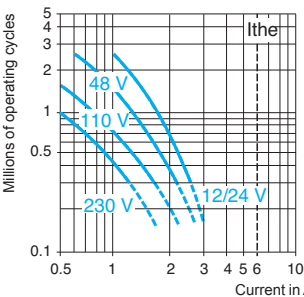
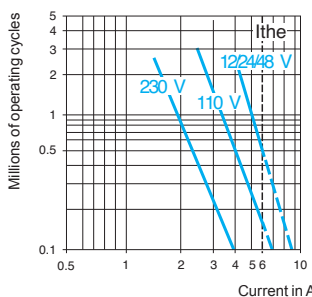


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Limit switches
Safety limit switches
Miniature design, metal, type XCSM

Environment		
Conforming to standards	Products	IEC/EN 60947-5-1, UL 508, CSA C22-2 No. 14
	Machine assemblies	IEC/EN 60204-1, EN 1088
Product certifications	UL, CSA	
Maximum safety level (1)	PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508	
Reliability data B _{10d}	50,000,000 (data value for a service life of 10 years can be limited by contact and mechanical wear)	
Protective treatment	Standard version: "TC"	
Ambient air temperature	Operation: - 13 to + 158 °F (- 25 to + 70 °C). Storage: - 40 to + 158 °F (- 40 to + 70 °C)	
Vibration resistance	XCSM snap action: 5 gn. XCSM slow break: 25 gn (10–500 Hz) conforming to IEC 60068-2-6	
Shock resistance	25 gn, (18 ms) conforming to IEC 60068-2-27	
Electric shock protection	Class I, conforming to IEC 6140 and NF C 20-030	
Degree of protection	IP 66, IP 67 and IP 68 (2) conforming to IEC 60529; IK 06 conforming to EN 50102	
Materials	Body: zamak. Head: zamak. Protective cover: steel.	
Repeat accuracy	0.002 in. (0.05 mm) on the tripping points with 1 million operating cycles for head with end plunger	
Contact block specifications		
Rated operational specifications	~ AC-15; B300 (Ue = 240 V, Ie = 1.5 A) --- DC-13 ; R300 (Ue = 250 V, Ie = 0.1 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1	
Rated insulation voltage	Ui = 400 V degree of pollution 3 conforming to IEC 60947-5-1 Ui = 300 V conforming to UL 508, CSA C22-2 No. 14	
Rated impulse withstand voltage	U imp = 4 kV conforming to IEC 60947-1, IEC 60664	
Positive operation (depending on model)	N.C. contacts with positive opening operation conforming to IEC/EN 60947-5-1 Appendix K	
Resistance across terminals	≤ 25 mΩ conforming to IEC 60255-7 category 3	
Short-circuit protection	6 A cartridge fuse type gG (gl)	
Minimum actuation speed	Snap action contact: 0.01 m/minute Break before make, slow break: 6 m/minute	

(1) Using an appropriate and correctly connected control system.
(2) Protection against prolonged immersion: the test conditions are subject to agreement between the manufacturer and the user.

Electrical life	■ Conforming to 60947-5-1 Appendix C ■ Utilization category AC-15 and DC-13 ■ Maximum frequency: 3600 operating cycles/hour ■ Load factor: 0.5				
a.c. supply ~ 50/60 Hz ~ inductive circuit	XCSM snap action (N.C.+ N.C. + N.O., N.C.+ N.C. + N.O. + N.O. contacts)		XCSM slow break (N.C.+ N.C. + N.O. contact)		
					
d.c. supply ~	Power broken in W for 5 million operating cycles		Power broken in W for 5 million operating cycles		
	Voltage	V	24	48	120
	~	W	3	2	1
	Voltage	V	24	48	120
	~	W	4	3	3

Electrical Life

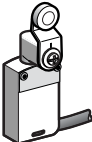
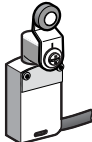
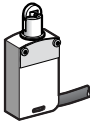
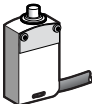
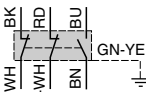
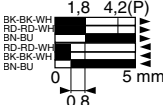
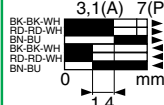
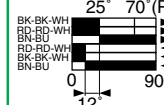
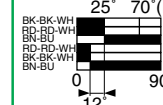
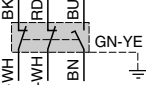
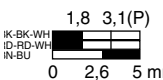
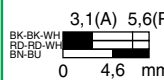
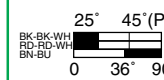
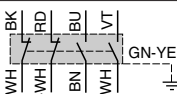
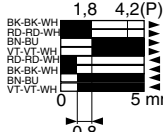
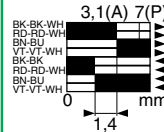
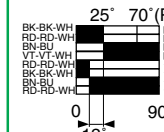
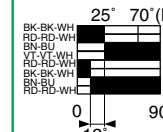
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Limit switches

Safety limit switches

Miniature design, metal, type XCSM

Pre-cabled

Type of head		Plunger		Rotary	
		Mounting by the body 			
Type of operator		Metal end plunger	Roller plunger	Thermoplastic roller lever	Steel roller lever
Catalog numbers with 6.6 ft (2 m) cable (1)					
	3-pole N.C.+N.C.+N.O. snap action contact	XCSM3910L2 	XCSM3902L2 	XCSM3915L2 	XCSM3916L2 
	3-pole N.C.+N.C.+N.O. break before make, slow break contact	XCSM3710L2 	XCSM3702L2 	XCSM3715L2 	XCSM3716L2 
	4-pole N.C.+N.C.+N.O.+N.O. snap action contact	XCSM4110L2 	XCSM4102L2 	XCSM4115L2 	XCSM4116L2 
Weight lb (kg)		0.36 (0.165)	0.37 (0.170)	0.45 (0.205)	0.46 (0.210)
Contact operation		closed open (A) = cam displacement (P) = positive opening point ⊕ N.C. contact with opening positive operation			
Additional specifications not shown under General Specifications (page 6/255)					
Switch actuation		On end	By 30° cam		
Type of actuation					
Maximum actuation speed		1.64 ft/s (0.5 m/s)	1.64 ft/s (0.5 m/s)	4.9 ft/s (1.5 m/s)	
Minimum force or torque		Tripping Positive opening	1.9 lb (8.5 N) 9.6 lb (42.4 N)	1.6 lb (7 N) 7.9 lb (35 N)	0.9 lb-in. (0.1 N•m) 4.4 lb-in. (0.5 N•m)
Cabling		3-pole contacts PVR pre-cabled, 7 x 20 AWG (0.5 mm ²) 4-pole contacts PVR pre-cabled, 9 x 22 AWG (0.34 mm ²).			

(1) Devices shown have a 6.6 ft (2 m) cable, and are available with other lengths of cable:
 For a 3.3 ft (1 m) long cable, replace L2 with L1.
 For a 16.4 ft (5 m) long cable, replace L2 with L5.

Limit switches

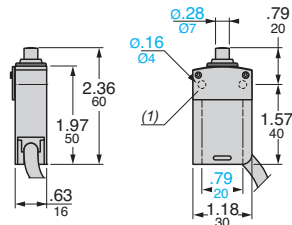
Safety limit switches

Miniature design, metal, type XCSM

Pre-cabled

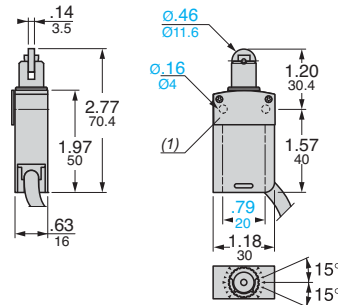
Dimensions in. (mm)

XCSM●●10L1

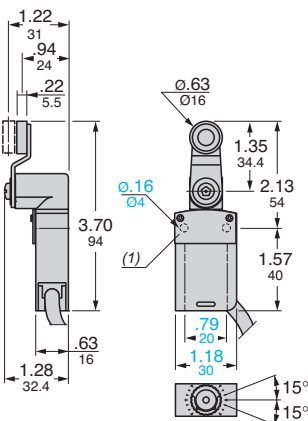


(1) Protective cover mounted with 5-lobe torque safety screws.

XCSM●●02L1

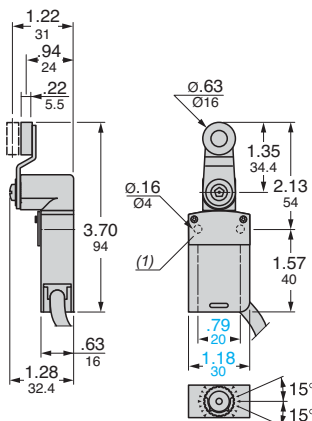


XCSM●●15L1



(1) Protective cover mounted with 5-lobe torque safety screws.

XCSM●●16L1

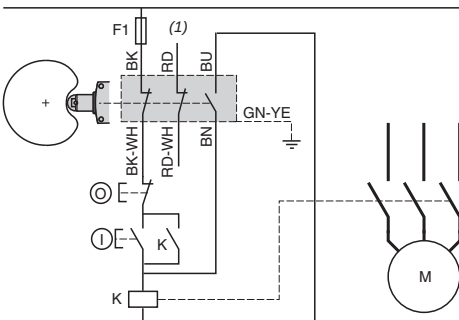


Dual Dimensions: INCHES
Millimeters

Wiring diagrams

Wiring to PL=b, category 1 conforming to EN/ISO 13849-1

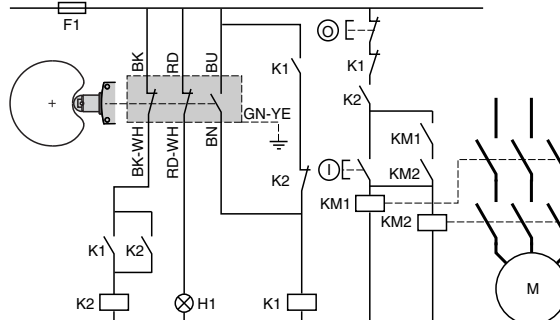
Example with 3-pole N.C.+N.C.+N.O. contact and protective fuse to prevent jumpering of the N.C. contacts, either by cable damage or by tampering.



(1) Signaling contact

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

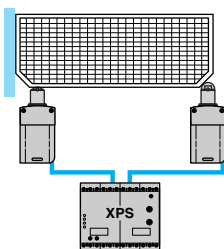
Example with 3-pole N.C.+N.C.+N.O. contact with mixed redundancy of the contacts and the associated control relays. Opening and closing of the guard necessary to activate K1.



H1: "guard closed" indicator light

Example of guard monitoring using 2 limit switches and 1 safety relay module (PL=e, category 4/SIL3)

Operation in positive and negative (combined) mode



6

Limit switches

Safety limit switches

Compact design, metal, type XCSD

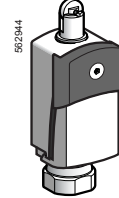
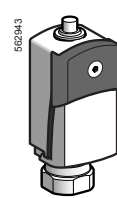
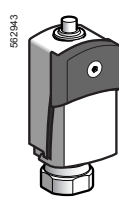
Compact design, plastic, type XCSP

■ XCSD, XCSP
with 1 conduit entry
conforming to EN 50047

With head for linear movement (plunger)

XCSD

XCSP



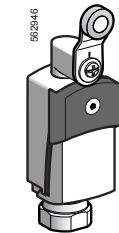
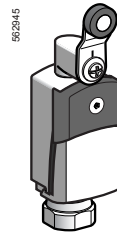
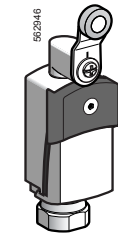
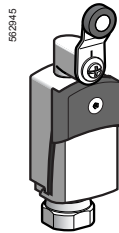
Pages 6/260 and 6/261

Pages 6/262 and 6/263

With head for rotary movement (lever)

XCSD

XCSP



Pages 6/260 and 6/261

Pages 6/262 and 6/263

Environmental specifications

Conformity to standards	Products	IEC/EN 60947-5-1, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC/EN 60204-1, EN 1088/ISO 14119
Product certifications		UL, CSA
Maximum safety level (1)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508
Reliability data B _{10d}		50,000,000 (data value for a service life of 10 years can be limited by contact and mechanical wear)
Protective treatment	Standard version	"TC"
Ambient air temperature	For operation	- 13 to + 158 °F (- 25 to + 70 °C)
	For storage	- 40 to + 158 °F (- 40 to + 70 °C)
Vibration resistance	Conforming to IEC 60068-2-6	25 gn (10–500 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn (11 ms)
Electric shock protection		Class I conforming to IEC 61140 and NF C 20-030 for XCSD
		Class II conforming to IEC 61140 and NF C 20-030 for XCSP
Degree of protection	Conforming to IEC 60529	IP 66 and IP 67
	Conforming to EN 50102	IK 06 for XCSD IK 04 for XCSP
Repeat accuracy		0.004 in. (0.1 mm) on the tripping points, with 1 million operating cycles for head with end plunger
Cable entry	Depending on model	Tapped entry for 13.5 cable gland, tapped ISO M20 x 1.5 or tapped 1/2" NPT
Materials		XCSD zamak bodies and heads, XCSP plastic bodies, zamak heads Plastic protective cover, secured by 5-lobe socket head safety screw

Contact block specifications

Rated operational specifications		~ AC-15; B300 (U _e = 240 V, I _e = 1.5 A); I _{the} = 6 A --- DC-13; R300 (U _e = 250 V, I _e = 0.1 A), conforming to IEC/EN 60947-5-1 Appendix A
Rated insulation voltage		U _i = 400 V degree of pollution 3 conforming to EN/IEC 60947-1 U _i = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage		U _{imp} = 4 kV conforming to EN/IEC 60947-1, IEC 60664
Positive operation		N.C. contacts with positive opening operation conforming to IEC/EN 60947-5-1 Appendix K
Resistance across terminals		≤ 25 mΩ conforming to IEC 60255-7 category 3
Short-circuit protection		6 A cartridge fuse type gG (gl)
Connection (screw clamp terminals)		Clamping capacity, min: 1 x 22 AWG (0.34 mm ²), max: 1 x 18 AWG (1 mm ²) or 2 x 18 AWG (0.75 mm ²)
Minimum actuation speed (for head with end plunger)	Snap action	0.39 in/ (0.01 m) per minute
	Slow break	19.7 ft/ (6 m) per minute

(1) Using an appropriate and correctly connected control system.

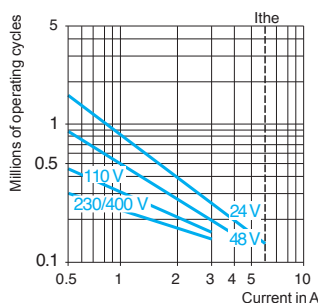
Electrical life

- Conforming to EN/IEC 60947-5-1 Appendix C
- Utilization categories AC-15 and DC-13
- Maximum operating rate: 3600 operating cycles/hour
- Load factor: 0.5

a.c. supply
~ 50/60 Hz
~ inductive circuit

d.c. supply ---

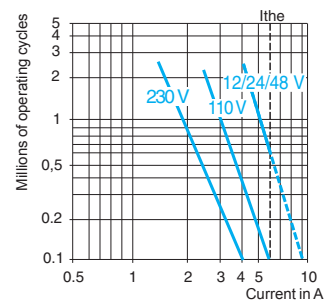
Snap action contacts



Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
~mm	W	3	2	1

Slow break contacts



Power broken in W for 5 million operating cycles.

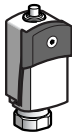
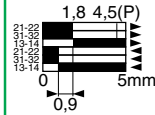
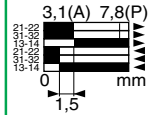
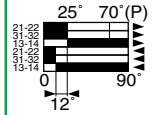
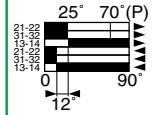
Voltage	V	24	48	120
~mm	W	4	3	2

Electrical Life

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Limit switches

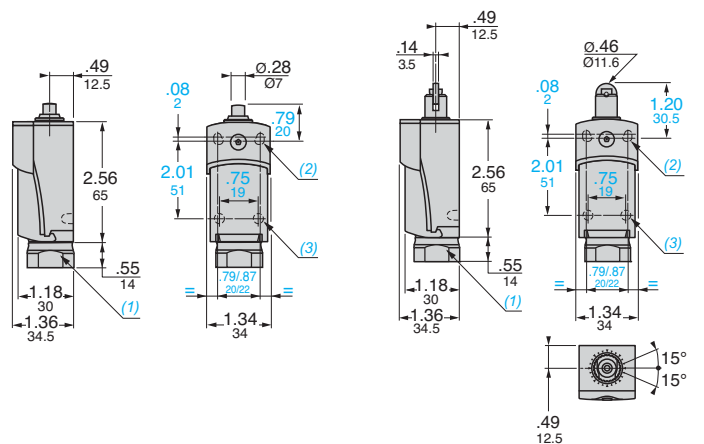
Safety limit switches
Compact design, metal, type XCSD

Type of head	Plunger		Rotary	
				
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever
Catalog numbers of assembled devices with 3-pole N.C. + N.C. + N.O. snap action contact				
With 1/2" NPT cable entry	XCSD3910N12 ⊕	XCSD3902N12 ⊕	XCSD3918N12 ⊕	XCSD3919N12 ⊕
With ISO M20 x 1.5 cable entry	XCSD3910P20 ⊕	XCSD3902P20 ⊕	XCSD3918P20 ⊕	XCSD3919P20 ⊕
With Pg 13.5 cable entry	XCSD3910G13 ⊕	XCSD3902G13 ⊕	XCSD3918G13 ⊕	XCSD3919G13 ⊕
Weight lb (kg)	0.47 (0.215)	0.49 (0.220)	0.56 (0.255)	0.56 (0.255)
Contact functional diagrams				
 3-pole N.C. + N.C. + N.O. snap action contact				
Contact operation	■ contact closed □ contact open ⊕ N.C. contact with positive opening operation (A) = cam displacement (P) = positive opening point			
Additional specifications not shown under General Specifications (page 6/259)				
Switch actuation	On end	By 30° cam		
Type of actuation				
Maximum actuation speed	1.64 ft/s (0.5 m/s)		4.9 ft/s (1.5 m/s)	
Minimum force or torque	For tripping	3.72 lb (15 N)	2.70 lb (12 N)	0.89 lb-in (0.1 N•m)
	For positive opening	10.12 lb (45 N)	8.09 lb (36 N)	2.21 lb-in (0.25 N•m)
Conduit entry	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm 1 entry tapped Pg 13.5 for cable gland, clamping capacity 9 to 12 mm 1 entry tapped for 1/2" NPT (USAS B2-1) conduit			

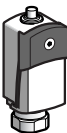
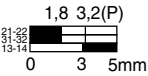
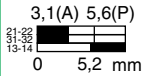
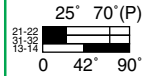
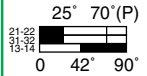
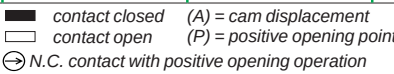
Dimensions in. (mm)

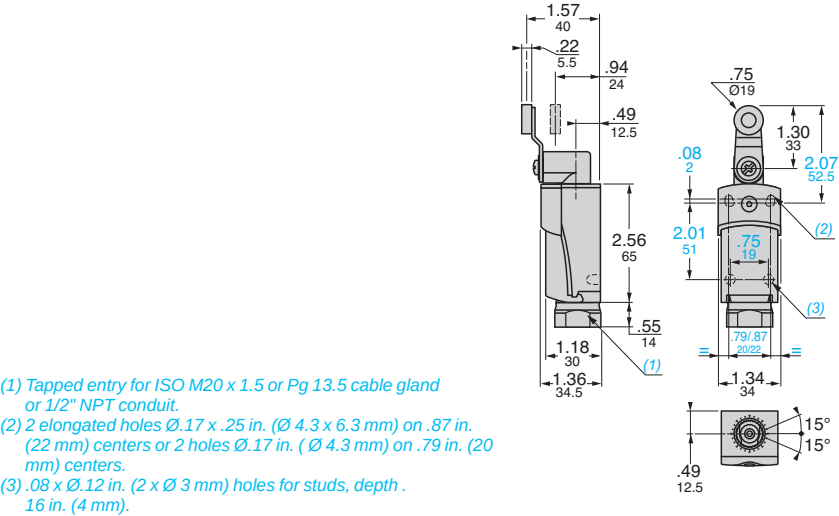
XCSD3●10●●●

XCSD3●02●●●

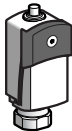
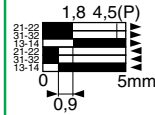
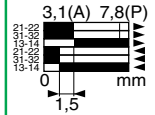
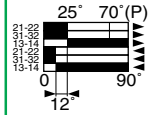
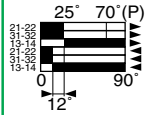
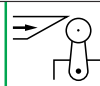


Dual Dimensions: INCHES
Millimeters

Type of head	Plunger		Rotary	
				
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever
Catalog nos. of assembled devices with 3-pole N.C. + N.C. + N.O. break before make, slow break contact				
With 1/2" NPT cable entry	XCSD3710N12 ⊖	XCSD3702N12 ⊖	XCSD3718N12 ⊖	XCSD3719N12 ⊖
With ISO M20 x 1.5 cable entry	XCSD3710P20 ⊖	XCSD3702P20 ⊖	XCSD3718P20 ⊖	XCSD3719P20 ⊖
With Pg 13.5 cable entry	XCSD3710G13 ⊖	XCSD3702G13 ⊖	XCSD3718G13 ⊖	XCSD3719G13 ⊖
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Contact operation	 (A) = cam displacement (P) = positive opening point ⊖ N.C. contact with positive opening operation			
Additional specifications not shown under General Specifications (page 6/259)				
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Type of actuation				
Maximum actuation speed	1.64 ft/s (0.5 m/s)		4.9 ft/s (1.5 m/s)	
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	For positive opening	10.12 lb (45 N)	8.09 lb (36 N)	2.21 lb-in (0.25 N•m)
Conduit entry	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm 1 entry tapped Pg 13.5 for cable gland, clamping capacity 9 to 12 mm 1 entry tapped for 1/2" NPT (USAS B2-1) conduit			
Dimensions in. (mm)				
XCSD3●18●●●, XCSD3●19●●●				



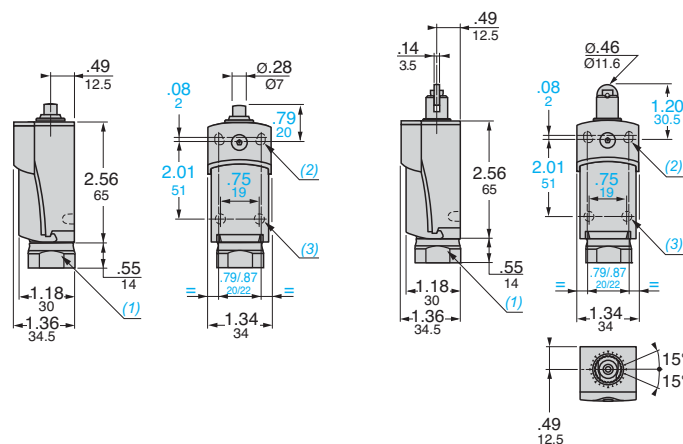
Dual Dimensions: INCHES
Millimeters

Type of head	Plunger		Rotary	
				
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever
Catalog numbers of assembled devices with 3-pole N.C. + N.C. + N.O. snap action contact				
With 1/2" NPT cable entry	XCSP3910N12 ⊕	XCSP3902N12 ⊕	XCSP3918N12 ⊕	XCSP3919N12 ⊕
With ISO M20 x 1.5 cable entry	XCSP3910P20 ⊕	XCSP3902P20 ⊕	XCSP3918P20 ⊕	XCSP3919P20 ⊕
With Pg 13.5 cable entry	XCSP3910G13 ⊕	XCSP3902G13 ⊕	XCSP3918G13 ⊕	XCSP3919G13 ⊕
Weight lb (kg)	0.47 (0.215)	0.49 (0.220)	0.56 (0.255)	0.56 (0.255)
Contact functional diagrams				
 3-pole N.C. + N.C. + N.O. snap action contact	 1,8 4,5(P) 0 5mm 0,9	 3,1(A) 7,8(P) 0 1,5 mm	 25° 70°(P) 0 12° 90°	 25° 70°(P) 0 12° 90°
Contact operation	 contact closed  contact open  N.C. contact with positive opening operation (A) = cam displacement (P) = positive opening point			
Additional specifications not shown under General Specifications (page 6/259)				
Switch actuation	On end	By 30° cam		
Type of actuation				
Maximum actuation speed	1.64 ft/s (0.5 m/s)	4.9 ft/s (1.5 m/s)		
Minimum force or torque	For tripping For positive opening	3.72 lb (15 N) 10.12 lb (45 N)	2.70 lb (12 N) 8.09 lb (36 N)	0.89 lb-in (0.1 N•m) 2.21 lb-in (0.25 N•m)
Conduit entry	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm 1 entry tapped Pg 13.5 for cable gland, clamping capacity 9 to 12 mm 1 entry tapped for 1/2" NPT (USAS B2-1) conduit			

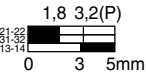
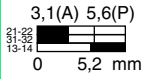
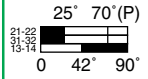
Dimensions in. (mm)

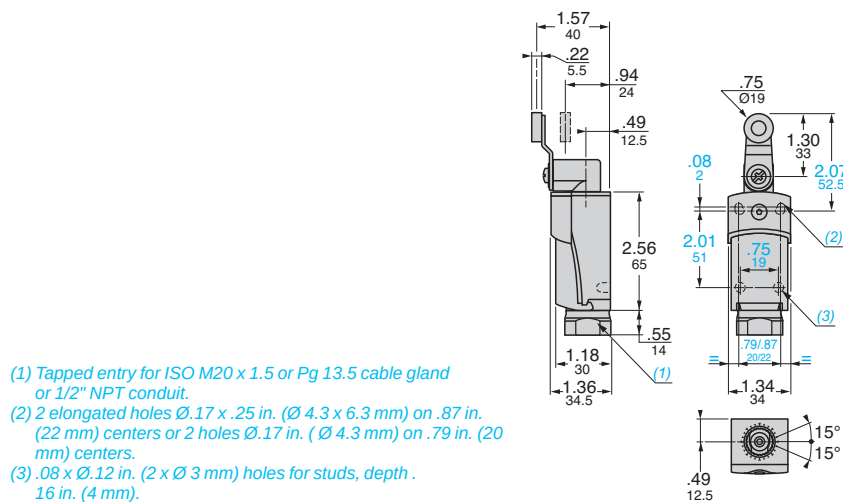
XCSP3●10●●●

XCSP3●02●●●



Dual Dimensions: INCHES
Millimeters

Type of head	Plunger		Rotary	
				
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever
Catalog nos. of assembled devices with 3-pole N.C. + N.C. + N.O. break before make, slow break contact				
With 1/2" NPT cable entry	XCSP3710N12 ⊖	XCSP3702N12 ⊖	XCSP3718N12 ⊖	XCSP3719N12 ⊖
With ISO M20 x 1.5 cable entry	XCSP3710P20 ⊖	XCSP3702P20 ⊖	XCSP3718P20 ⊖	XCSP3719P20 ⊖
With Pg 13.5 cable entry	XCSP3710G13 ⊖	XCSP3702G13 ⊖	XCSP3718G13 ⊖	XCSP3719G13 ⊖
Weight lb (kg)	0.47 (0.215)	0.49 (0.220)	0.56 (0.255)	0.56 (0.255)
Contact functional diagrams				
 3-pole N.C. + N.C. + N.O. break before make, slow break contact	 1.8 3,2(P) 0 3 5mm	 3,1(A) 5,6(P) 0 5,2 mm	 25° 70°(P) 0 42° 90°	 25° 70°(P) 0 42° 90°
Contact operation	■ contact closed □ contact open ⊖ N.C. contact with positive opening operation (A) = cam displacement (P) = positive opening point			
Additional specifications not shown under General Specifications (page 6/259)				
Switch actuation	On end	By 30° cam		
Type of actuation				
Maximum actuation speed	1.64 ft/s (0.5 m/s)		4.9 ft/s (1.5 m/s)	
Minimum force or torque	For tripping	3.72 lb (15 N)	2.70 lb (12 N)	0.89 lb-in (0.1 N•m)
	For positive opening	10.12 lb (45 N)	8.09 lb (36 N)	2.21 lb-in (0.25)
Conduit entry	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm 1 entry tapped Pg 13.5 for cable gland, clamping capacity 9 to 12 mm 1 entry tapped for 1/2" NPT (USAS B2-1) conduit			
Dimensions in. (mm)				
XCSP3●18●●●, XCSP3●19●●●				



Dual Dimensions: INCHES
Millimeters

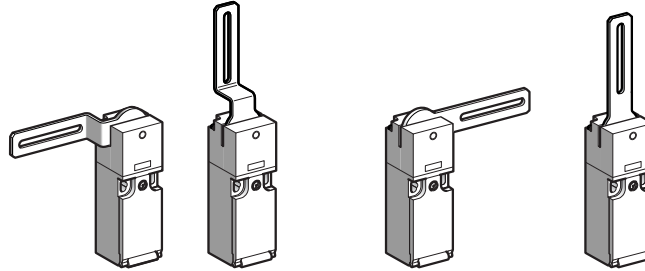
Limit switches

Safety interlock switches with lever
or rotary shaft operator

Plastic, double insulated, turret head,
types XCSPL, XCSTL, XCSPR and XCSTR

XCSPL with 1 conduit entry

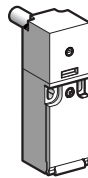
With rotary operating head, with elbowed lever (flush with rear of switch) or
straight lever, for hinged covers and guards



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XCSPR with 1 conduit entry

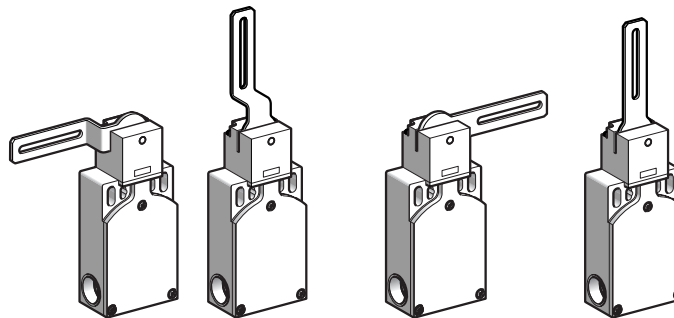
With rotary operating head, with rotary shaft, for hinged covers and guards



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XCSTL with 2 conduit entries

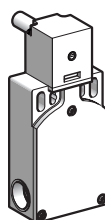
With rotary operating head, with elbowed lever (flush with rear of switch) or
straight lever, for hinged covers and guards



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XCSTR with 2 conduit entries

With rotary operating head, with rotary shaft, for hinged covers and guards



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Safety interlock switches with lever
or rotary shaft operator

Plastic, double insulated, turret head,
types XCSPL, XCSTL, XCSPR and XCSTR

Environmental specifications

Conformity to standards	Products	EN/IEC 60947-5-1, EN/IEC 60947-5-4, UL 508, CSA C22-2 n° 14
	Machine assemblies	EN/IEC 60204-1, EN/ISO 14119
Product certifications		UL, CSA, BG
Maximum safety level (1)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508
Reliability data B _{10d}		50,000,000 (data value for a service life of 10 years can be limited by contact and mechanical wear)
Protective treatment		Standard version: "TC" and "TH"
Ambient air temperature	For operation	-13 to +158 °F (- 25 to +70 °C)
	For storage	-40 to +158 °F (- 40 to +70 °C)
Vibration resistance		50 gn (10–500 Hz) conforming to IEC 60068-2-6
Shock resistance		50 gn (duration 11 ms) conforming to IEC 60068-2-27
Electric shock protection		Class 2 conforming to EN/IEC 60536
Degree of protection		IP 67 conforming to EN/IEC 60529
Cable entry		XCSPL : 1 entry tapped M16 x 1.5 for ISO cable gland (clamping capacity 4.5 to 10 mm) or for n° 11 (Pg 11) cable gland conforming to NF C 68-300 (DIN Pg 11) (clamping capacity 7 to 10 mm) or tapped for 1/2" NPT (USAS B2-1) conduit. XCSTL : 2 entries tapped M16 x 1.5 for ISO cable gland (clamping capacity 4.5 to 10 mm) or for n° 11 (Pg 11) cable gland conforming to NF C 68-300 (DIN Pg 11) (clamping capacity 7 to 10 mm) or for 1/2" NPT conduit using adaptor DE9RA1012 in one of the n° 11 tapped entries and a blanking plug in the other.
Materials		Polyamide PA66 fiberglass impregnated case and stainless steel lever and mountings

Contact block specifications

Rated operational specifications	2 and 3 contact versions slow break	XCSPL, XCSTL, XCSPR, XCSTR : ~ AC-15, A300: Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A All models: --- DC-13, Q300: Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A conforming to IEC/EN 60947-5-1
Rated insulation voltage	2 and 3 contact versions	XCSPL, XCSTL, XCSPR, XCSTR : Ui = 500 V conforming to IEC/EN 60947-1 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage	2 and 3 contact versions	XCSPL, XCSTL, XCSPR, XCSTR : Uimp = 6 kV conforming to IEC/EN 60947-5-1
Positive operation		N.C. contacts with positive opening operation conforming to EN/IEC 60947-5-1 Section 3
Resistance across terminals		≤ 30 mΩ conforming to EN/IEC 60947-5-4
Short-circuit protection	2 and 3 contact versions	XCSPL, XCSTL, XCSPR, XCSTR : 10 A cartridge fuse type gG (gl)
Connection	2 contact version	XCSPL, XCSTL, XCSPR, XCSTR : Clamping capacity, min: 1 x 21 AWG (0.5 mm ²), max: 2 x 15 AWG (1.5 mm ²) with or without cable end
Minimum actuation speed	3 contact version	0.39 in./s (0.01 m/s)

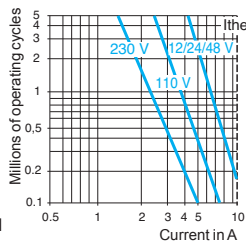
Additional specifications

Tripping angle	5°
Mechanical life	1 million operating cycles
Minimum torque	For tripping: 0.07 lb-ft; for positive opening: 0.18 lb-ft (XCSPL and XCSPR), 0.33 lb-ft (XCSTL and XCSTR)

(1) Using an appropriate and correctly connected control system.

Electrical life	Conforming to EN/IEC 60947-5-1 Appendix C. Utilization categories AC-15 and DC-13. Maximum operating rate: 3600 operating cycles/hour. Load factor: 0.5
-----------------	--

2 and 3 slow break contact versions



a.c. supply
~ 50/60 Hz
--- inductive circuit

The product life expressed is based on average usage and normal operating conditions. Actual operating life will vary with conditions. The above statements are not intended to nor shall they create any express or implied warranties as to product operation or life. For information on the limited warranty offered on this product please refer to the Square D terms and conditions of sale found in the Digest.

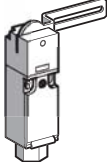
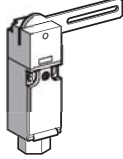
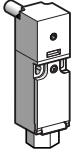
d.c. supply ---

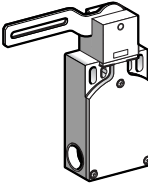
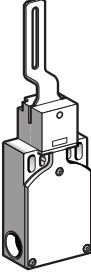
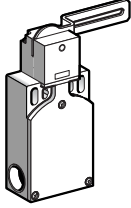
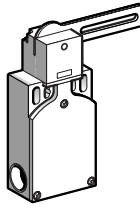
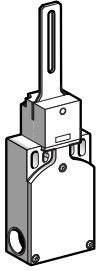
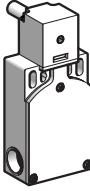
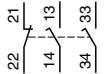
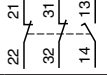
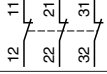
Power broken in W for 1 million operating cycles

Voltage	V	24	48	120
--- W	W	13	9	7

Limit switches

Safety interlock switches with lever or shaft operator
Plastic, double insulated, turret head,
types XCSPL, XCSTL, XCSPR and XCSTR
Conduit entries tapped 1/2" NPT

Type	Elbowed lever (flush with rear of switch)			Straight lever		Shaft
						
Operator	To left	Centered	To right	To right OR to left	Centered	Length 1.18 in. (30 mm) (2)
Catalog numbers (⊕ N.C. contact with positive opening operation)						
2-pole N.C. + N.O. break before make slow break		XCSPL593	XCSPL583	XCSPL573	XCSPL563	XCSPL553
		⊕	⊕	⊕	⊕	⊕
2-pole N.C. + N.C. slow break		XCSPL793	XCSPL783	XCSPL773	XCSPL763	XCSPL753
		⊕	⊕	⊕	⊕	⊕
Weight lb (kg)	0.21 (0.095)	0.21 (0.095)	0.21 (0.095)	0.21 (0.095)	0.21 (0.095)	0.23 (0.105)

						
Operator	To left	Centered	To right	To right OR to left	Centered	Length 1.18 in. (30 mm) (2)
Catalog numbers (⊕ N.C. contact with positive opening operation)						
3-pole N.C. + N.O. + N.O. (2 N.O. staggered) slow break		-	XCSTL583	-	XCSTL563	XCSTL553
			⊕		⊕	⊕
3-pole N.C. + N.C. + N.O. (N.O. staggered) slow break		XCSTL793	XCSTL783	XCSTL773	XCSTL763	XCSTL753
		⊕	⊕	⊕	⊕	⊕
3-pole N.C. + N.C. + N.C. slow break		-	XCSTL883	XCSTL873	XCSTL863	-
			⊕	⊕	⊕	
Weight lb (kg)	0.32 (0.145)	0.32 (0.145)	0.32 (0.145)	0.32 (0.145)	0.32 (0.145)	0.34 (0.155)

Adapter catalog number: XCSTL or XCSTR with 1/2" NPT conduit

One conduit adapter for 1/2" NPT conduit is included with each device.

For a second conduit adapter when using 2 conduit openings, order an additional conduit adapter: DE9RA1012.



Sold in lots of 10	DE9RA1012
Weight lb (kg)	0.11 (0.050)

(1) Head adjustable in 90° steps throughout 360°. Switches supplied with 2 additional self-locking screws for positive mounting of the head.

(2) For switches with 3.15 in. (80 mm) rotary shaft: replace the 2nd number in the catalog number (5) by 6. Example: XCSPR553 becomes XCSPR563. The weight increases by 1.1 oz. (0.032 kg.)

The devices listed above are threaded for 1/2" NPT, (using the supplied adapter on the XCST) and are available with metric conduit:

■ To order devices tapped for 11 mm cable gland, conforming to NFC 68-300 (DIN Pg 11): Change the last character in the part number to 1.

For example: XCSPL593 is changed to XCSPL591.

■ To order devices tapped for M16 x 1.5 for ISO cable gland: Change the last character in the part number to 2. For example: XCSPL593 is changed to XCSPL592.

Operation, Dimensions in. (mm), Wiring diagrams

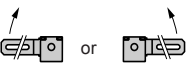
Limit switches

Safety interlock switches with lever or shaft operator
Plastic, double insulated, turret head,
types XCSPL, XCSTL, XCSPR and XCSTR
Conduit entries tapped for 1/2" NPT conduit

Operation

Operator displacement

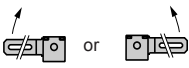
XCSPL●93, PL●73,
PL●63



XCSPL●83, PL●53



XCSTL●93, TL●73,
TL●63



XCSTL●83, TL●53



XCSPR●53

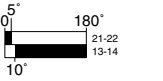


XCSTR●53

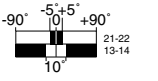


Functional diagrams

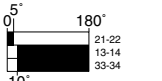
XCSPL593, PL573,
PL563



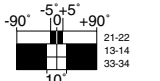
XCSPL583, PL553



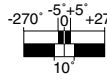
XCSTL563



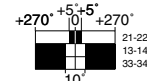
XCSTL583, TL553



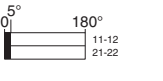
XCSPR553



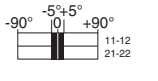
XCSTR553



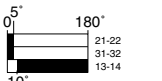
XCSPL793, PL773,
PL763



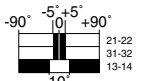
XCSPL783, PL753



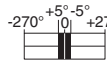
XCSTL793, TL773,
TL763



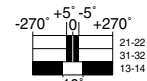
XCSTL783, TL753



XCSPR753



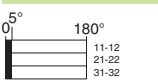
XCSTR753



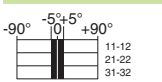
Contact operation

■ contact closed
□ contact open

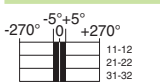
XCSTL873, TL863



XCSTL883, TL853

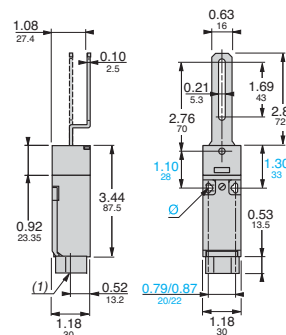


XCSTR853



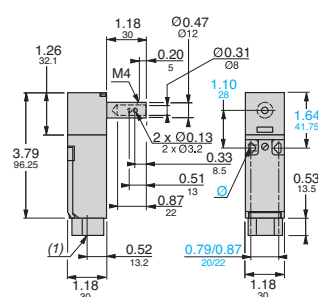
Dimensions in. (mm)

XCSPL●●3



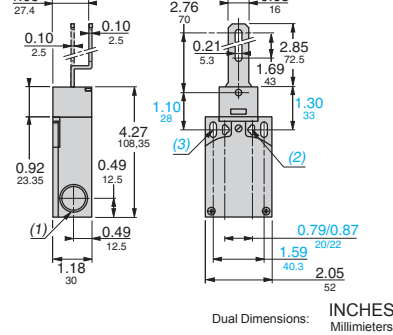
(1) 1 tapped entry for 1/2" NPT conduit
Ø: 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers

XCSPR●●3



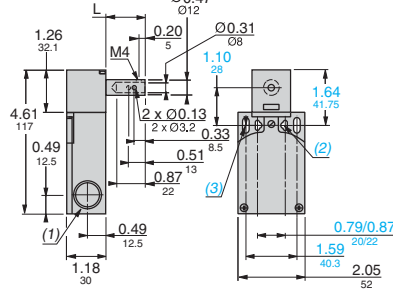
(1) 1 tapped entry for 1/2" NPT conduit
Ø: 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers
L = 1.18 in. (30 mm) (XCSPR●53)
or 3.15 in. (80 mm) (XCSPR●63)

XCSTL●●3



(1) 2 tapped entries for n° 11 cable gland
(2) 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers
(3) 22 elongated holes Ø 0.21 x 0.52 in. (5.3 x 13.3 mm)

XCSTR●●3

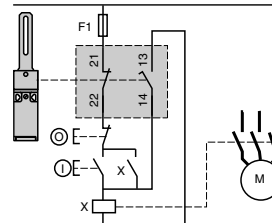


(1) 2 tapped entries for n° 11 cable gland
(2) 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers
(3) 2 elongated holes Ø 0.21 x 0.52 in. (5.3 x 13.3 mm)
L = 1.18 in. (30 mm) (XCSTR●53)
or 3.15 in. (80 mm) (XCSTR●63)

Wiring diagrams

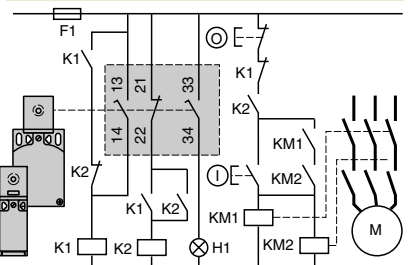
PL=b, category 1 conforming to
EN/ISO 13849-1

Example with cable short-circuit protection fuse



PL=d, category 3 conforming to
EN/ISO 13849-1

Example with 3-pole N.C. + N.O. + N.O. contact
with mixed redundancy of the contacts and the
associated control relays



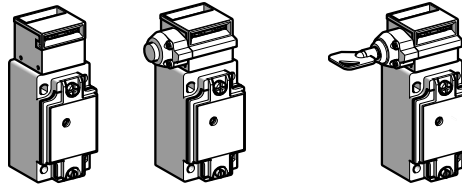
To activate K1, the lever or spindle must be rotated when the supply is switched on. H1: "lever or spindle displaced from initial position" indicator. When used in conjunction with an XPS safety relay module and another safety switch, the rotary lever or rotary shaft operator safety interlock switch can provide locking protection to PL=d, category 3 or PL=e, category 4 conforming to EN/ISO 13849-1.

Limit switches

Safety interlock switches, actuator operated
Metal, turret head, types XCSA, XCSB and XCSC
Plastic, double insulated, turret head,
types XCSMP or XCSPA and XCSTA

Metal, types XCSA, XCSB,
XCSC

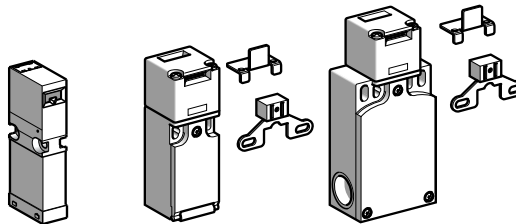
Safety interlock switches with or without locking of the actuator



Page 6/270

Plastic, types XCSMP, XCSPA
XCSTA

Safety interlock switches with or without locking of the actuator



Pages 6/274 and 6/278

6

Environmental specifications

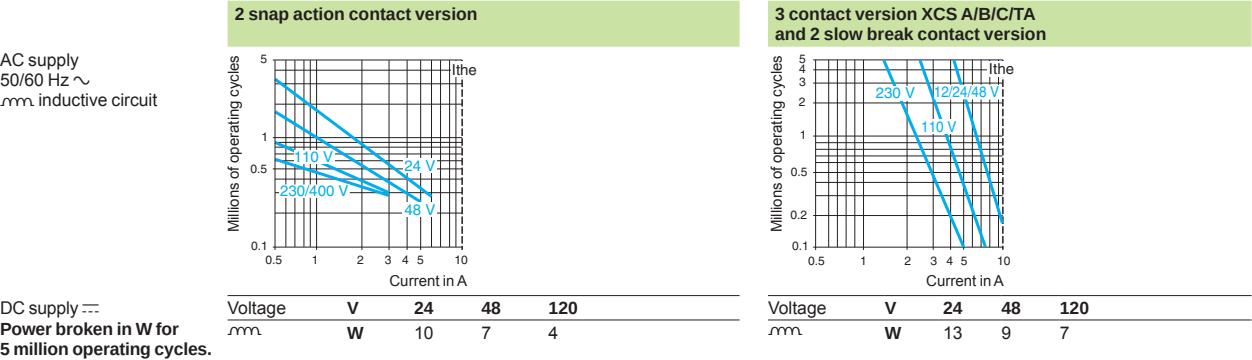
Safety interlock switch type		XCSA, XCSB, XCSC (metal)	XCSMP, XCSPA, XCSTA (plastic)
Conformity to standards	Products	EN/IEC 60947-5-1, UL 508, CSA C22-2 n° 14	
	Machine assemblies	EN/IEC 60204-1, EN/ISO 14119	
Product certifications		UL, CSA	UL, CSA (cULus for XCSMP)
Maximum safety level (1)		PL=e, Category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508	
Reliability data B _{10d}		5 000 000 (data value for a service life of 10 years can be limited by contact and mechanical wear)	
Protective treatment		Standard version: "TC"	
Ambient air temperature	For operation	- 13°F to + 158°F (- 25°C to + 70°C)	
	For storage	- 40°F to + 158°F (- 40°C to + 70°C); - 13°F to + 176°F (- 25°C to + 80°C) for XCSMP	
Vibration resistance		5 gn (10–500 Hz) conforming to EN/IEC 60068-2-6 (6 gn (10–55 Hz) for XCSMP)	
Shock resistance		10 gn (duration 11 ms) conforming to EN/IEC 60068-2-27 (50 gn (duration 11 ms) for XCSMP)	
Electric shock protection		Class 1 conforming to EN/IEC 60536	Class 2 conforming to EN/IEC 60536
Degree of protection		IP 67 conforming to EN/IEC 60529 and EN/IEC 60947-5-1 Live parts of these switches are protected against the penetration of dust and water. However, when installing take all necessary precautions to prevent the penetration of solid bodies, or liquids with a high dust content, into the actuator aperture. Not recommended for use in saline atmospheres	
Cable entry		1 entry tapped ISO M20 x 1.5 (clamping capacity 7 to 13 mm) or tapped for n° 13 (Pg 13.5) cable gland conforming to NFC 68-300 (clamping capacity 9 to 12 mm) or for 1/2" NPT (USAS B2-1) conduit	1 entry (XCSPA) or 2 entries (XCSTA) tapped for ISO M16 x 1.5 cable gland (clamping capacity 4.5 to 10 mm) or for n° 11 (Pg 11) cable gland, or tapped 1/2" NPT, or for 1/2" NPT (USAS B2-1) conduit using metal adapter DE9 RA1012) for XCSTA (other entry fitted with blanking plug).
Connecting cable		–	Pre-cabled, either 4 x 0.5 mm ² or 6 x 0.5 mm ² (XCSMP)
Materials		XCSA/B/C Zamak case	XCSMP/PA/TA Polyamide PA66 fibreglass impregnated case
		Actuators (all types): steel XC60, surface treated	

(1) Using an appropriate and correctly connected control system.

Limit switches
Safety interlock switches, actuator operated
Metal, turret head, types XCSA, XCS and XCSC
Plastic, double insulated, turret head,
types XCSPMP or XCSPA and XCSTA

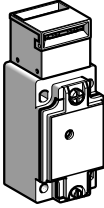
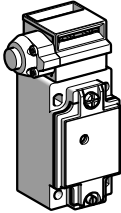
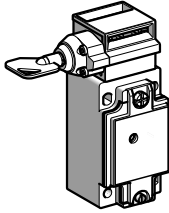
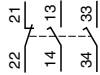
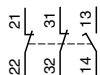
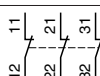
Contact block specifications		
Rated operational specifications	2 and 3 contact, slow break	XCSA, XCSB, XCSC, XCSTA, XCSPA: ~ AC-15, A300: Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A XCSPMP: ~ AC-15, C300: Ue = 240 V, Ie = 0.75 A or Ue = 120 V, Ie = 1.5 A All models: ~ DC-13, Q300: Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A conforming to EN/IEC 60947-5-1
	2 contact, snap action	XCSPA: ~ AC-15, A300: Ue = 240 V, Ie = 3 A; Ithe = 10 A ~ DC-13, Q300: Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A conforming to EN/IEC 60947-5-1
Conventional thermal current in enclosure		XCSA, XCSB, XCSC, XCSPA (2 & 3 slow break contact and 2 snap action contact versions) XCSPMP: Ithe = 2.5 A
Rated insulation voltage		Ui = 500 V conforming to EN/IEC 60947-1; Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage		Uimp = 6 kV conforming to EN/IEC 60947-5-1
Positive operation		N.C. contacts with positive opening operation conforming to EN/IEC 60947-5-1, Section 3
Resistance across terminals		≤ 30 mΩ conforming to EN/IEC 60947-5-4
Short-circuit protection		10 A cartridge fuse type gG (gl)
Connection	Pre-cabled	4 x 20 AWG (0.5 mm²) or 6 x 20 AWG (0.5 mm²) (XCSPMP), PVC
	Screw clamp 2 contact, snap action terminals	XCSPA, XCSTA: Clamping capacity, min: 1 x 22 AWG (0.34 mm²), max: 2 x 14 AWG (1.5 mm²)
	2 and 3 contact	3 contact (XCSA, XCSB, XCSC, XCSTA), 2 contact (XCSPA): Clamping capacity, min: 1 x 20 AWG (0.5 mm²), max: 2 x 14 AWG (1.5 mm²) with or without cable end

Electrical durability		
Conforming to EN/IEC 60947-5-1 Appendix C. Utilization categories AC-15 and DC-13. Maximum operating rate: 3600 operating cycles/hour. Load factor: 0.5	Only applicable to XCSPMP:	Conforming to EN/IEC 60947-5-1 Appendix C. Utilization categories AC-15 and DC-13. Maximum operating rate: 900 operating cycles/hour.



Limit switches

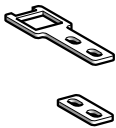
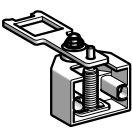
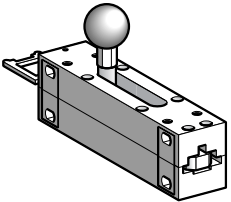
Safety interlock switches, actuator operated
Metal, turret head (1), types XCSA, XCSB and XCSC
Conduit entries tapped 1/2" NPT

Type of switch	Without locking of actuator			With locking of actuator, manual unlocking (2)			
							
LED indication on opening of N.C. contacts	Without	1 orange LED ~ 24/48 V	1 orange LED ~ 110/240 V	Without	1 orange LED ~ 24/48 V	1 orange LED ~ 110/240 V	Without
Catalog numbers of switches without actuator (⊖N.C. contact with positive opening operation)							
Schematic diagrams shown represent the contact states while the actuating key is inserted in the head of the switch.							
3-pole N.C. + N.O. + N.O. (2 N.O. staggered) slow break		XCSA503 ⊖	XCSA523 ⊖	XCSB503 ⊖	-	-	-
3-pole N.C. + N.C. + N.O. (N.O. staggered) slow break		XCSA703 ⊖	XCSA713 ⊖	XCSA723 ⊖	XCSB703 ⊖	XCSB713 ⊖	XCSB723 ⊖
3-pole N.C. + N.C. + N.C. slow break		XCSA803 ⊖	-	-	XCSB803 ⊖	-	-
Weight lb (kg)	0.97 (0.440)	0.97 (0.440)	0.97 (0.440)	1.05 (0.475)	1.05 (0.475)	1.05 (0.475)	1.06 (0.480)

Additional specifications not shown under General Specifications (pages 6/268 and 6/269)

Actuation speed	Maximum: 19.7 in./s (0.5 m/s), minimum: 0.39 in./s (0.01 m/s)
Resistance to forcible withdrawal of actuator	XCSB and XCSC: 337 lbs. (1500 N)
Maximum operating rate	For maximum life: 600 operating cycles per hour
Minimum force for extraction of actuator	≥ 4.5 lbs (20 N)
Cable entry	XCSA, XCSB, XCSC: 1 conduit entry Entries tapped for 1/2" NPT (USAS B2-1) conduit
Materials	Body: zamak. Head: zamak.

Catalog numbers of actuators

				
Description	Straight actuator	Actuator with wide mounting	Pivoting actuator	Latch for sliding doors (Padlockable in open position)
For safety interlock switches XCS A, B, C, E	XCSZ01	XCSZ02	XCSZ03	XCSZ05
Weight lb (kg)	0.04 (0.020)	0.04 (0.020)	0.21 (0.095)	1.32 (0.600)

(1) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.

(2) Unlocking by pushbutton for XCSB●●● and by key operated lock for XCSC●●● (2 keys included with switch).

The devices listed above are threaded for 1/2" NPT, and are available with metric conduit:

■ To order devices tapped for 13 mm cable gland, conforming to NFC 68-300 (DIN PG 13.5): Change the last character in the part number to 1.

For example: XCSA723 is changed to XCSA721.

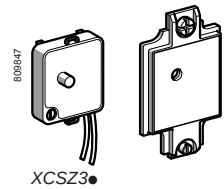
■ To order devices tapped for M20 x 1.5 for ISO cable gland: Change the last character in the part number to 2.

For example: XCSA723 is changed to XCSA722.

To order devices with pre-wired connectors, refer to pages 6/300 and 6/301.

Limit switches
Safety interlock switches, actuator operated
Metal, turret head, types XCSA, XCSB and XCSC

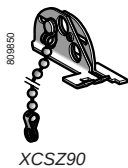
Separate components



Description	For use with	Supply voltage	Catalog number	Weight lb (kg)
1 orange LED indicator module with cover, seal and 2 mounting screws	XCSA	~ or 24/48 V ~	XCSZ31	0.09 (0.040)
	XCSB	110/240 V ~	XCSZ32	0.09 (0.040)

Description	For use with	Catalog number	Weight lb (kg)
Blanking plugs for operating head slot (Sold in lots of 10)	XCSA, XCSB, XCSC	XCSZ27	0.11 (0.050)

Tubular high security keys to manually unlock and open guards (Sold in lots of 10)	XCSB, XCSC	XCSZ25	0.22 (0.100)
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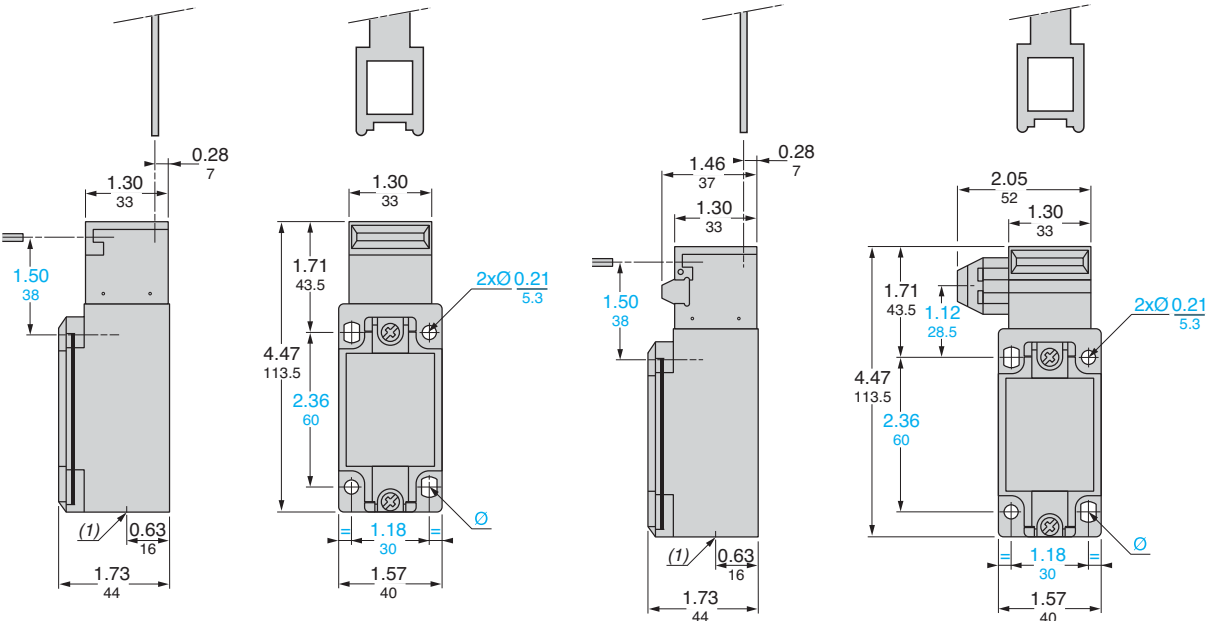
Padlocking attachment to prevent insertion of padlocks, for up to 3 padlocks (padlocks not included) The padlock attachment cannot be used as a lock-out tag-out means.	XCSA, XCSB, XCSC	XCSZ90	0.12 (0.055)
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Dimensions in. (mm)

Safety interlock switches

XCSA●●●

XCSB●●●, XCSC●●●



Dual Dimensions: INCHES
Millimeters

(1) 1 tapped entry for ISO M20 or Pg 13.5 cable gland or 1/2" NPT

Ø: 2 elongated holes Ø 0.21 x 0.29 in. (5.3 x 7.3 mm)

(1) 1 tapped entry for ISO M20 or Pg 13.5 cable gland or 1/2" NPT

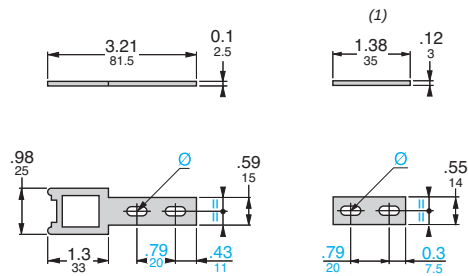
Ø: 2 elongated holes Ø 0.21 x 0.29 in. (5.3 x 7.3 mm)

Limit switches

Safety interlock switches, actuator operated
Metal, turret head, types XCSA, XCSB and XCSC

Dimensions (continued) in. (mm)

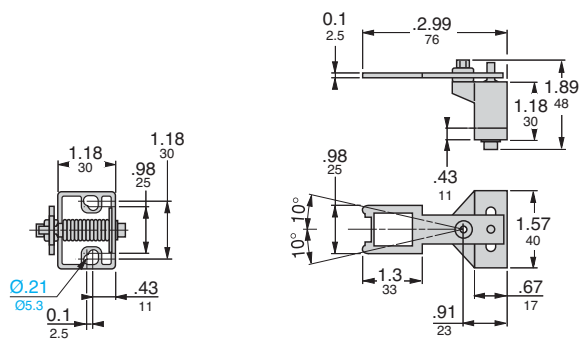
XCSZ01



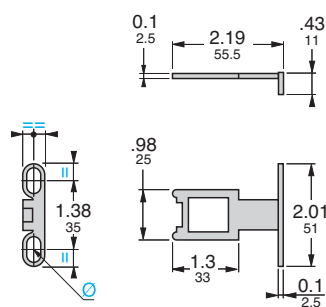
(1) Adapter (included with actuator XCSZ01) for replacing, without drilling additional mounting holes, a safety interlock switch XCKJ with actuating key ZCKY07 by an XCSA, B, C or E with actuating key XCSZ01.

Ø: 2 elongated holes Ø 0.21 x 0.39 in. (5.3 x 10 mm)

XCSZ03

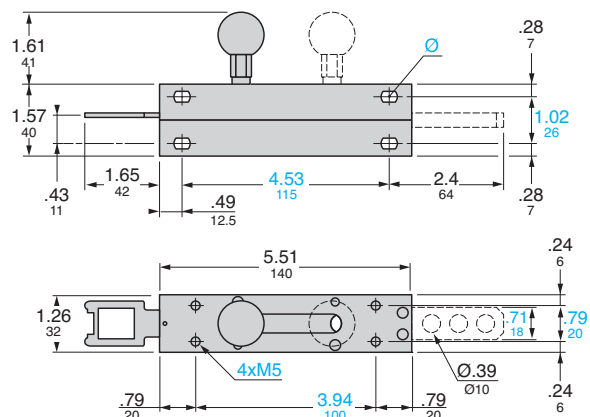


XCSZ02



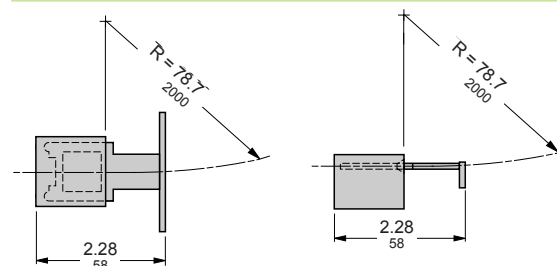
Ø: 2 elongated holes Ø 0.21 x 0.39 in. (5.3 x 10 mm)

XCSZ05

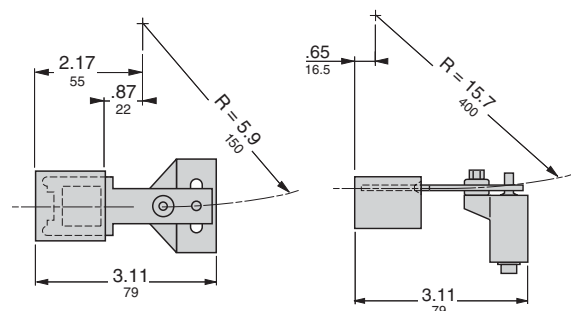


Ø: 4 elongated holes Ø 0.21 x 0.29 in. (5.3 x 7.3 mm)

XCSZ02



XCSZ03



Dual Dimensions: INCHES
Millimeters

R = minimum radius

Limit switches

Safety interlock switches, actuator operated
Metal, turret head, types XCSA, XCSB and XCSC

Setup

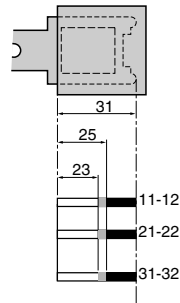
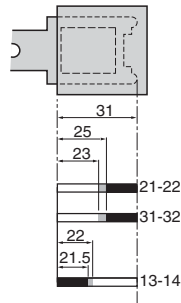
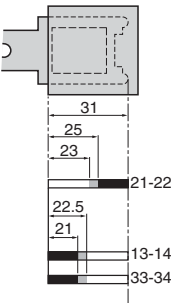
Functional diagrams

XCS5000

XCS7000

XCS8000

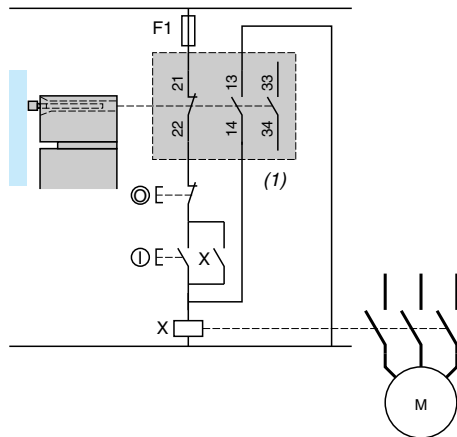
Contact operation



Wiring diagrams Note: These wiring diagrams are given as examples only, the designer must refer to the relevant safety standards for guidance.

Wiring to PL=b, category 1 conforming to EN/ISO 13849-1

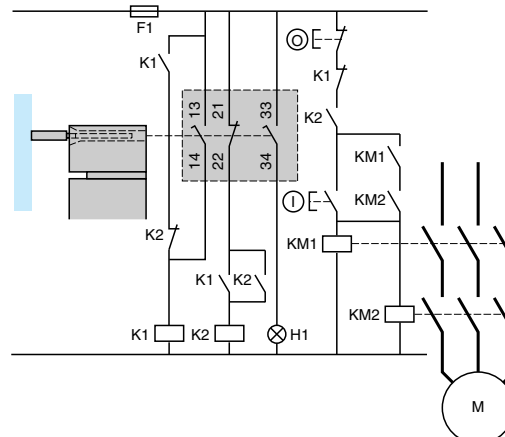
Example with 3-pole N.C. + N.O. + N.O. contact and protection fuse to prevent jumpering of the N.C. contact, either by cable damage or by tampering.



(1) Signaling contact

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

Example with 3-pole N.C. + N.O. + N.O. contact with mixed redundancy of the contacts and the associated control relays. To activate K1, it is necessary to remove and re-insert the actuator when the supply is switched on.

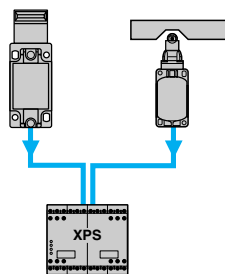


H1: "actuator not inserted" indicator

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Wiring method used in conjunction with Preventa safety relay module (The safety interlock switch should be used in conjunction with a safety limit switch to give electrical/mechanical redundancy).

Method for machines with quick rundown time (low inertia)

Locking device based on the principle of redundancy and self-monitoring.
The safety relay modules provide these functions.



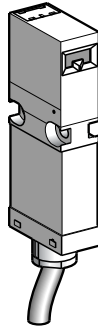
Locking of actuator and operation in positive mode associated with a safety relay module.

Limit switches

Safety interlock switches, actuator operated
Plastic, double insulated, fixed head, type XCSMP
Pre-cabled, length 6.6, 16.4, or 32.8 ft (2, 5, or 10 m)

Type of switch

Without locking of actuating key



Catalog numbers of switches without actuating key (⊖ N.C. contact with positive opening operation) (1)

Schematic diagrams shown represent the contact states while the operating key is inserted in the head of the switch.

2-pole N.C. + N.O. break before make, slow break 6.6 ft (2m) cable (2)		XCSMP59L2
2-pole N.C. + N.C. slow break 6.6 ft (2m) cable (2)		XCSMP79L2
3-pole N.C. + N.C. + N.O. break before make, slow break 6.6 ft (2m) cable (2)		XCSMP70L2
3-pole N.C. + N.C. + N.C. slow break 6.6 ft (2m) cable (2)		XCSMP80L2
Weight lb (kg)	0.24 (0.110)	

Additional specifications not shown under General Specifications (pages 6/268 and 6/269)

Actuation speed	Maximum: 59 in./s (1.5 m/s), minimum: 2 in./s (0.05 m/s)
Resistance to forcible withdrawal of actuating key	1.8 lbs. (8 N)
Connection	Pre-cabled, 4 x 20 AWG (0.5 mm ²) or 6 x 20 AWG (0.5 mm ²)
Maximum operating rate	For maximum life: 1200 operating cycles per hour
Minimum force for extraction of key	1.8 lbs. (8 N)

Catalog numbers of actuating keys

Description	Straight key	Right-angled key	Pivoting key For right-hand door	For left-hand door

For switches XCSMP	XCSZ81	XCSZ84	XCSZ83	XCSZ85
Weight lb (kg)	0.03 (0.015)	0.06 (0.025)	0.19 (0.085)	0.19 (0.085)

Spare parts

Description	Unit catalog number	Weight lb (kg)
Blanking plugs (Sold in lots of 10)	XCSZ29	0.01 (0.005)

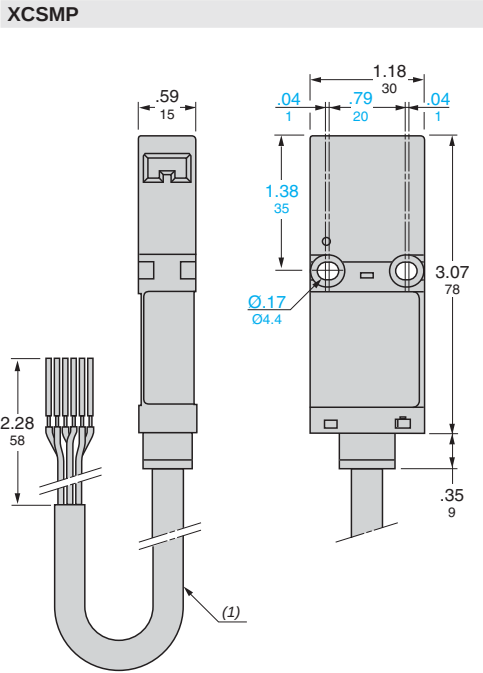
(1) Blanking plug for operating head slot included with switch
(2). Part numbers shown have a 6.6 ft. (2 m) cable. Other cable lengths are available: replace the 2 at the end of the part number with 5 for a 16.4 ft. (5m) cable,
or with 10 for a 32.8 ft. (10 m) cable.

Example: XCSMP59L2 becomes XCSMP59L10 for a switch with a 32.8 ft. (10 m) long cable.

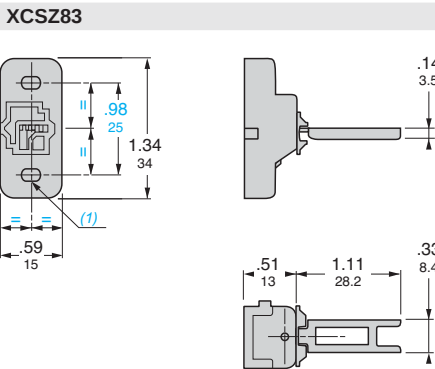
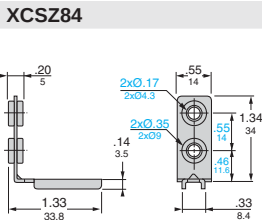
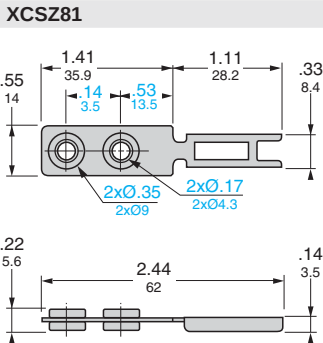
Limit switches

Safety interlock switches, actuator operated
Plastic, double insulated, fixed head, type XCSMP
Pre-cabled, length 6.6, 16.4, or 32.8 ft (2, 5, or 10 m)

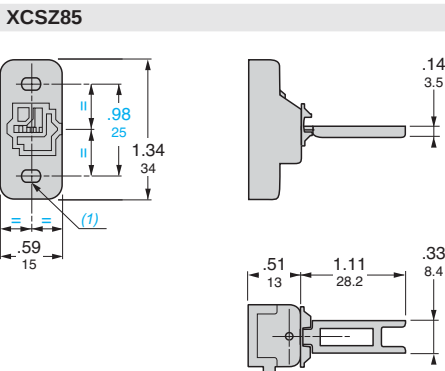
Dimensions in. (mm)



(1) $\varnothing$ 0.29 in. (7.6 mm);
length 6.6, 16.4, or 32.8 ft (2, 5, or 10 m).



(1) 2 elongated holes $\varnothing$ 0.17 x 0.24 in. (4.2 x 6.0 mm).



(1) 2 elongated holes $\varnothing$ 0.17 x 0.24 in. (4.2 x 6.0 mm).

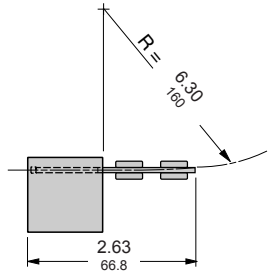
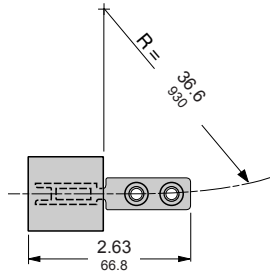
6

Limit switches

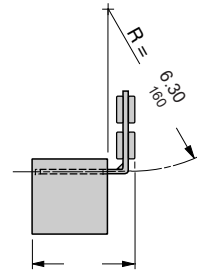
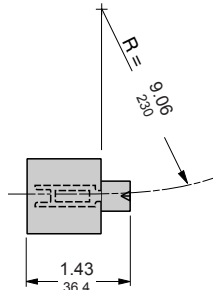
Safety interlock switches, actuator operated
Plastic, double insulated, fixed head, type XCSMP
Pre-cabled, length 6.6, 16.4, or 32.8 ft (2, 5, or 10 m)

Operating radius required for key

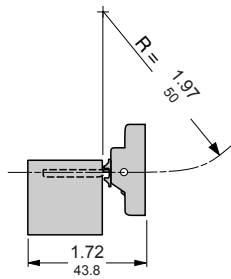
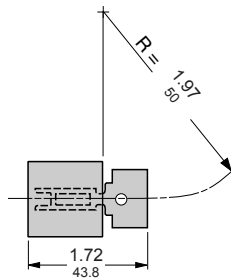
XCSZ81



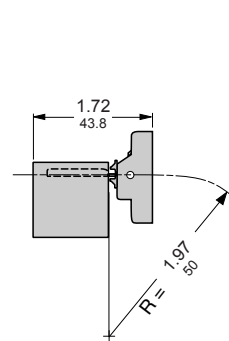
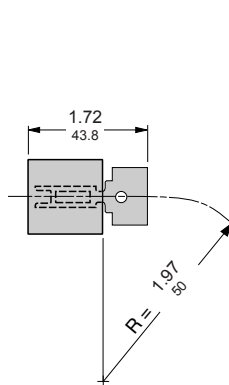
XCSZ84



XCSZ83

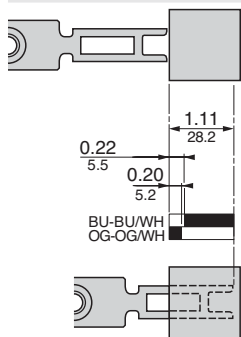


XCSZ85

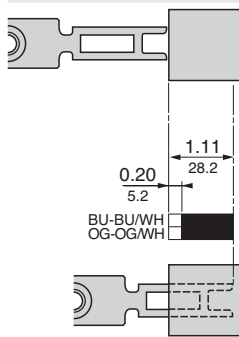


Functional diagrams

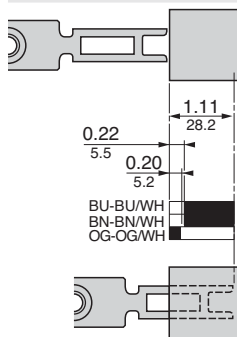
XCSMP59●



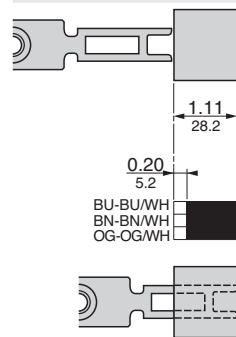
XCSMP79●



XCSMP70●



XCSMP80●



Contact operation

■ Contact closed
□ Contact open

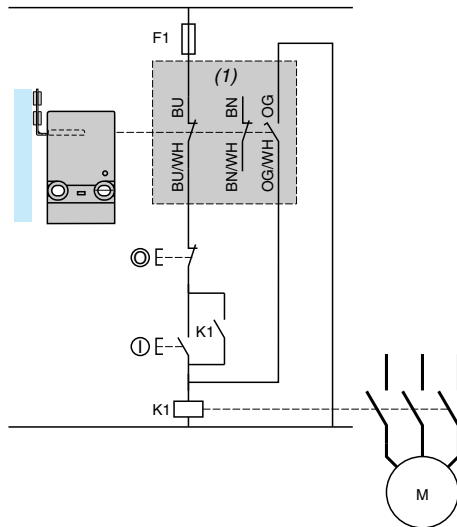
Dual Dimensions: INCHES
Millimeters

Safety interlock switches, actuator operated
Plastic, double insulated, fixed head, type XCSMP
Pre-cabled, length 6.6, 16.4, or 32.8 ft (2, 5, or 10 m)

Wiring diagrams (These wiring diagrams are given as examples only, the designer must refer to the relevant safety standards for guidance.)

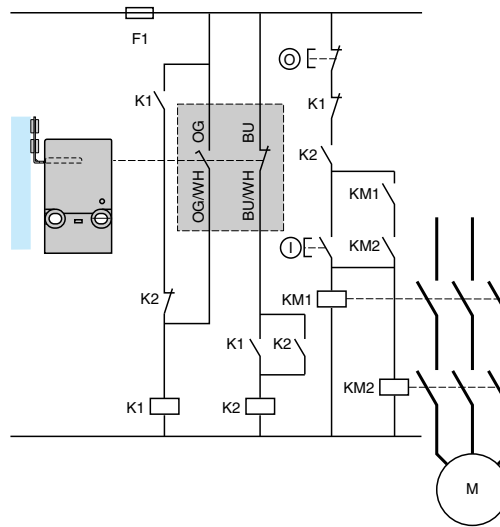
Wiring to PL=b, category 1 conforming to EN/ISO 13849-1

Example with 3-pole N.C. + N.C. + N.O. contact and protective fuse to prevent jumpering of the N.C. contact, either by cable damage or by tampering.



Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

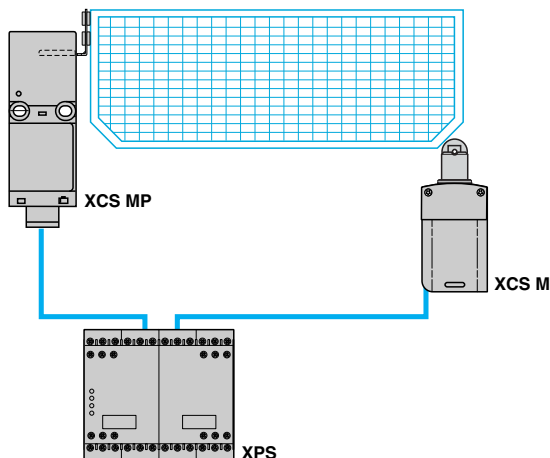
Example with 2-pole N.C. + N.O. contact with mixed redundancy of the contacts and the associated control relays.
To activate K1, it is necessary to remove and re-insert the actuator when the supply is switched on.



(1) Signaling contact

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Wiring method used in conjunction with Preventa™ safety relay (the keyed safety interlock switch is generally used in conjunction with a safety limit switch)

Method for machines with quick rundown time (low inertia)
Locking or interlocking mechanism uses the principles of redundancy and autocheck.
The safety relays help to ensure these functions.

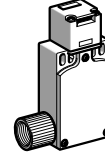


Locking by actuating key and actuation in positive mode associated with a safety relay module

Safety detection solution

Safety interlock switches, actuator operated
Plastic, turret head (1), types XCSPA and XCSTA
Conduit entries tapped 1/2" NPT

Type of switch Without locking of actuator



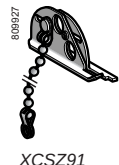
Catalog numbers of switches without actuating key (↺ N.C. contact with positive opening operation)

2-pole N.C. + N.O. (2) break before make slow break		XCSPA593	⊖	-
2-pole N.O. + N.C. (2) make before break slow break		XCSPA693	⊖	-
2-pole N.C. + N.C. (2) slow break		XCSPA793	⊕	-
3-pole N.C. + N.O. + N.O. (2) (2 N.O. staggered) slow break		-	-	XCSTA593 ⊖
3-pole N.C. + N.C. + N.O. (2) (N.O. staggered) slow break		-	-	XCSTA793 ⊖
3-pole N.C. + N.C. + N.C. (2) slow break		-	-	XCSTA893 ⊖
Weight lb (kg)		0.24 (0.110)		0.35 (0.160)

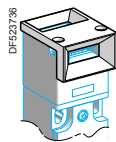
Additional specifications not shown under General Specifications (pages 6/268 and 6/269)

Actuation speed	Maximum: .19.6 in./s(0.5 m/s), minimum: 0.39 in./s (0.01 m/s)
Resistance to forcible withdrawal of actuator	XCSPA, XCSTA: 2.3 lbs (10 N) (11.3 lbs (50 N) using actuators XCSZ12 or XCSZ13 together with guard retaining device XCSZ21)
Maximum operating rate	For maximum life: 600 operating cycles per hour
Minimum force for positive opening	3.4 lbs (15 N)
Cable entry	XCSPA: 1 entry tapped for 1/2" NPT (USAS B2-1) conduit. XCSTA: 2 entries tapped 11 mm, 1 mounted with metal adapter DE9 RA1012 for 1/2" NPT (USAS B2-1) conduit. Second entry fitted with blanking plug.
Materials	Polyamide PA66 fiberglass impregnated case.

Catalog numbers of accessories



XCSPZ91



XCSZ200



DE9RA1012

Description	For use with	Unit catalog number	Weight lb (kg)
Blanking plugs for operating head slot (Sold in lots of 10)	XCSPA, XCSTA	XCSZ28	0.11 (0.050)
Padlocking device to prevent insertion of actuator, for up to 3 padlocks (padlocks not included)	XCSPA, XCSTA	XCSZ91	0.12 (0.053)
Actuator centering device (3) (Mounting screws included)	XCSPA, XCSTA	XCSZ200	0.05 (0.022)
1/2" NPT conduit adapter (Sold in lots of 10)	XCSTA	DE9RA1012	0.11 (0.050)

(1) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.

(2) Wiring diagrams shown represent the contact states while the actuating key is inserted in the head of the switch.

(3) Do not use with XCSPZ91.

The devices listed above are threaded for 1/2" NPT (using the supplied adapter on the XCSTA), and are available with metric conduit:

■ To order devices tapped for 11 mm cable gland, conforming to NFC 68-300 (DIN Pg 11): Change the last character in the part number to 1.

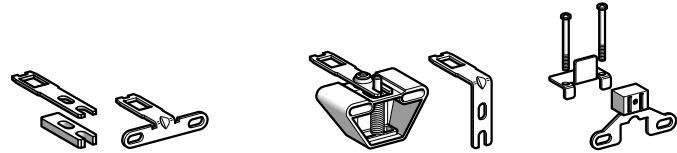
For example: XCSPA593 is changed to XCSPA591

■ To order devices tapped for M16 x 1.5 for ISO cable gland: Change the last character in the part number to 2. For example: XCSPA593 is changed to XCSPA592

Limit switches

Safety interlock switches, actuator operated
Plastic, turret head, types XCSA and XCSTA
Conduit entries tapped 1/2" NPT

Catalog numbers of actuators and guard retaining device



Description	Straight actuator	Actuator with wide mounting (1)		Pivoting actuator	Right-angled actuator	Guard retaining device (2)
For safety interlock switches XCS PA, TA	XCSZ11	XCSZ12	XCSZ15	XCSZ13	XCSZ14	XCSZ21
Weight lb (kg)	0.03 (0.015)	0.03 (0.015)	0.03 (0.012)	0.19 (0.085)	0.06 (0.025)	0.18 (0.080)

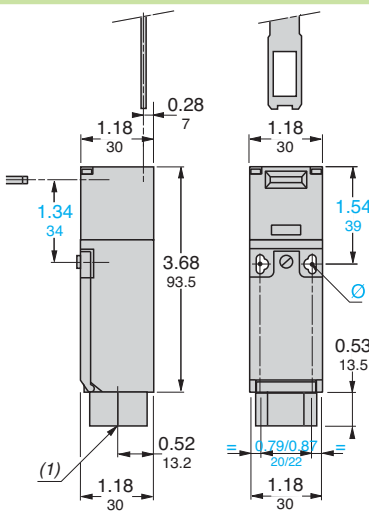
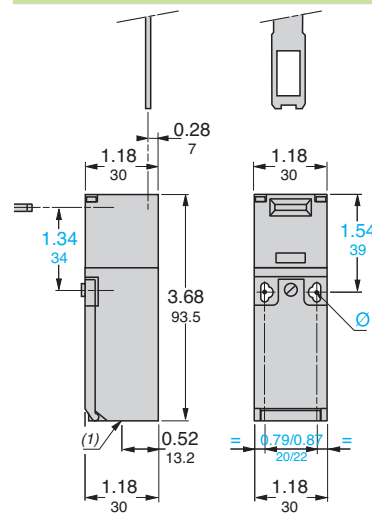
(1) 2 actuator lengths, XCSZ12: L = 1.57 in. (40 mm), XCSZ15: L = 1.14 in. (29 mm).

(2) Only for use with safety interlock switches XCSA and XCSTA (without actuator centring device XCSZ200) used in conjunction with actuators XCSZ12, XCSZ13 or XCSZ15.

Dimensions in. (mm)

XCSA●91, XCSA●92

XCSA●93



(1) 1 tapped entry for cable gland

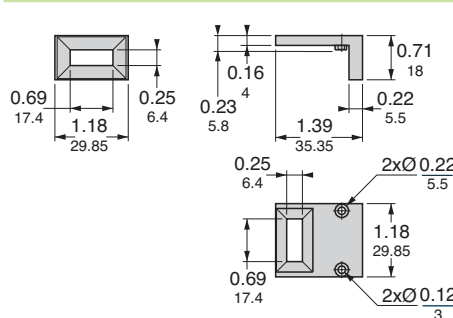
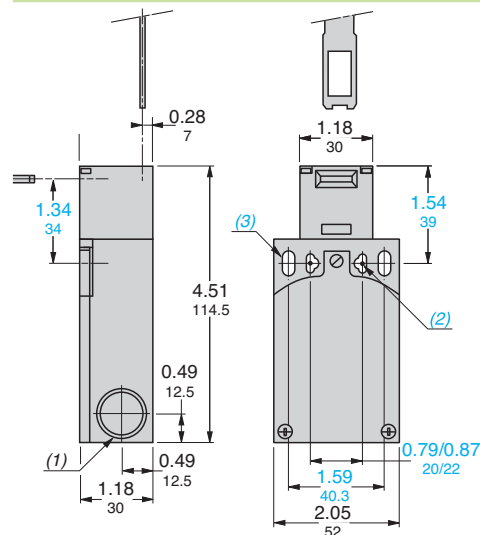
Ø: 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers

(1) 1 tapped entry tapped for 1/2" NPT conduit

Ø: 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers

XCSTA●9●

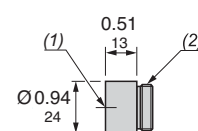
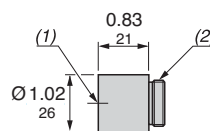
Actuator centring device XCSZ200



Dual Dimensions: INCHES
Millimeters

1/2" NPT conduit adapter
DE9RA1012

M16 x 1.5 adapter
DE9RA1016



(1) 2 tapped entries for cable gland or 1/2" NPT conduit adapter
(2) 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers
(3) 2 elongated holes Ø 0.21 x 0.52 in. (5.3 x 13.3 mm)

(1) Tapped entry for 1/2" NPT conduit
(2) Pg 11 threaded shank

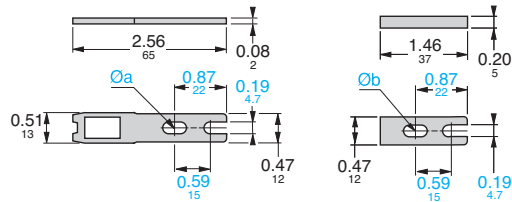
(1) M16 x 1.5 tapped entry
(2) Pg 11 threaded shank

Limit switches

Safety interlock switches, actuator operated
Plastic, turret head, types XCSZ11 and XCSZ15

Dimensions (continued) in. (mm)

XCSZ11

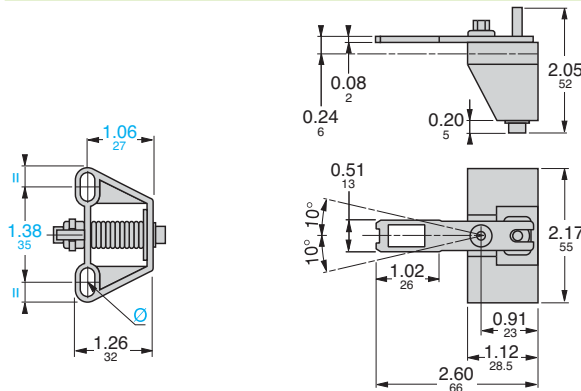


(1) Adapter (included with actuating key XCSZ11) for replacing, without drilling additional mounting hole, an XCKT with actuating key XCKY01 by a safety interlock switch XCSZ11 with actuating key XCSZ11.

Ø a: 2 elongated holes Ø 0.19 x 0.39 in. (4.7 x 10 mm)

Ø b: 1 elongated hole for M4 or M4.5 screw

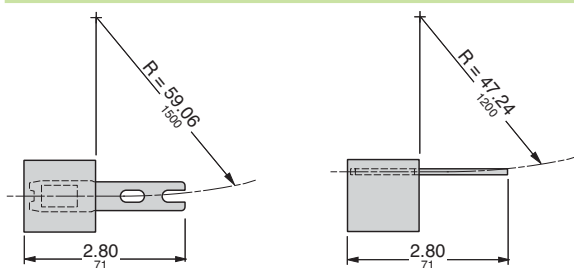
XCSZ13



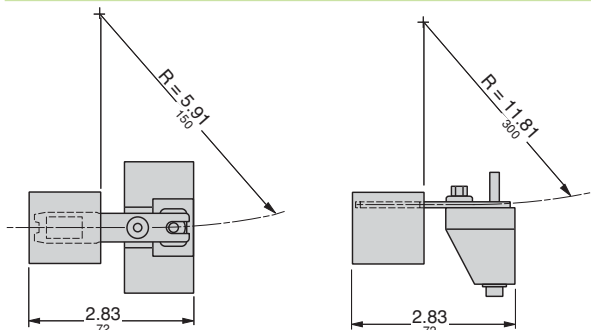
Ø: 2 elongated holes Ø 0.19 x 0.39 in. (4.7 x 10 mm)

Operating radius required for actuator

XCSZ11

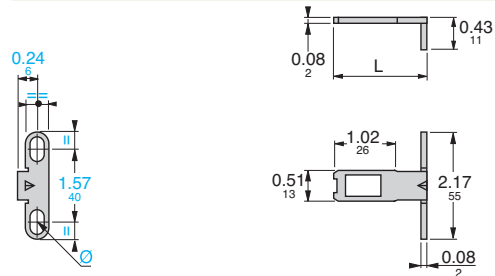


XCSZ13



R = minimum radius

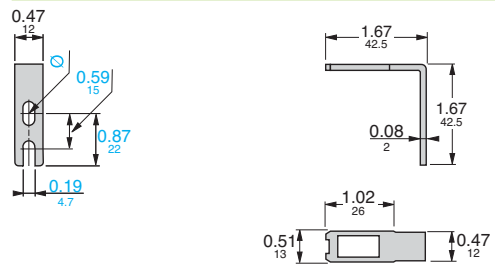
XCSZ12, XCSZ15



Ø: 2 elongated holes Ø 0.19 x 0.39 in. (4.7 x 10 mm)

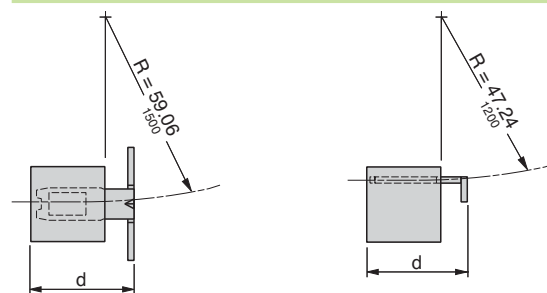
L = 1.57 in. (40 mm) (XCSZ12) or 1.14 in. (29 mm) (XCSZ15)

XCSZ14



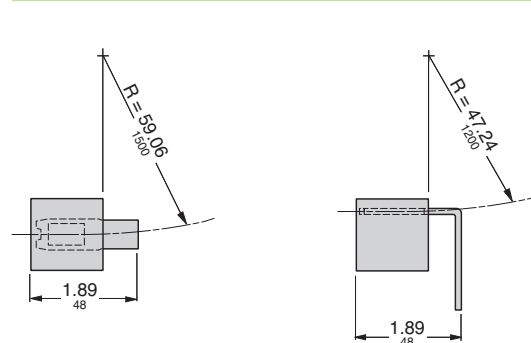
Ø: 1 elongated hole Ø 0.19 x 0.39 in. (4.7 x 10 mm)

XCSZ12, XCSZ15



d = 1.81 in. (46 mm) (XCSZ12) or 1.38 in. (35 mm) (XCSZ15)

XCSZ14



Dual Dimensions: INCHES
Millimeters

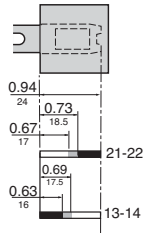
Limit switches

Safety interlock switches, actuator operated
Plastic, turret head, types XCSPA and XCSTA

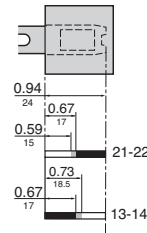
Setup

Functional diagrams

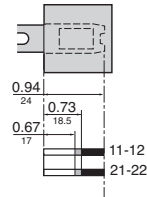
XCSPA5●●



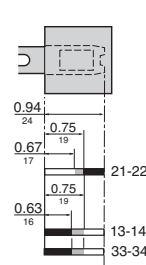
XCSPA6●●



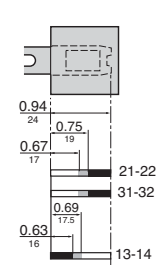
XCSPA7●●



XCSTA5●●



XCSTA7●●



Contact operation

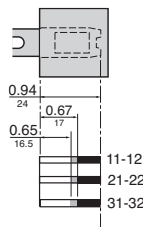
■ Contact closed □ Contact open ■ Contacts in transition

Dual Dimensions: INCHES
Millimeters

Setup

Functional diagrams

XCSTA8●●



Contact operation

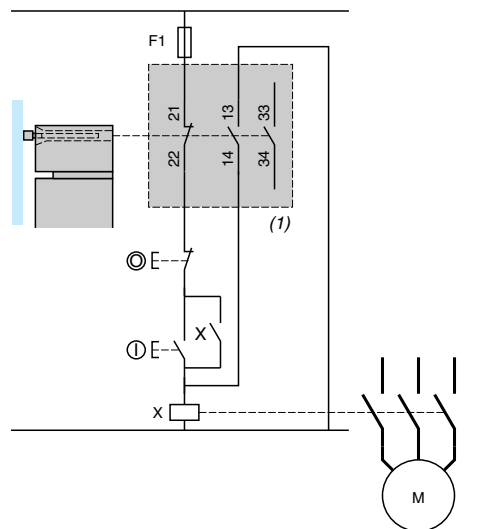
■ Contact closed □ Contact open ■ Contact in transition

Wiring diagrams

Note: These wiring diagrams are given as examples only, the designer must refer to the relevant safety standards for guidance

Wiring to PL=b, category 1 conforming to EN/ISO 13849-1

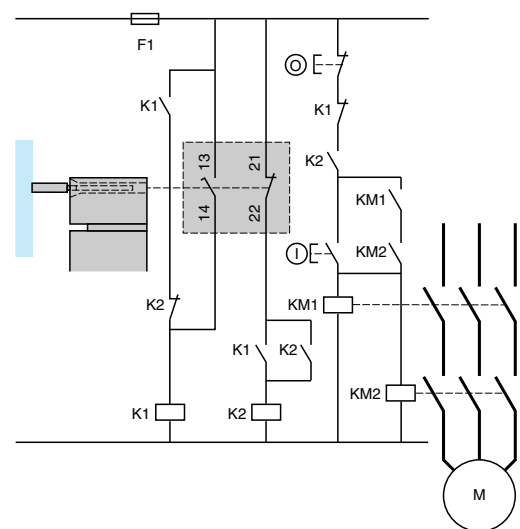
Example with 3-pole N.C. + N.O. contact and protection fuse to prevent jumpering of the N.C. contact, either by cable damage or by tampering.



(1) Signaling contact

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

Example with 2-pole N.C. + N.O. contact with mixed redundancy of the contacts and the associated control relays. To activate K1, it is necessary to remove and re-insert the actuator when the supply is switched on.



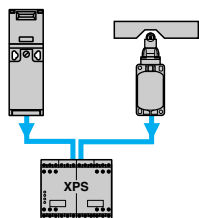
Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508

Wiring method used in conjunction with safety relay module

(The guard interlock switch should be used in conjunction with a safety limit switch to give electrical/mechanical redundancy)

Method for machines with quick rundown time (low inertia)

Locking or interlocking device based on the principle of redundancy and self-monitoring.



Locking of actuator and operation in positive mode associated with a safety relay module.

Limit switches

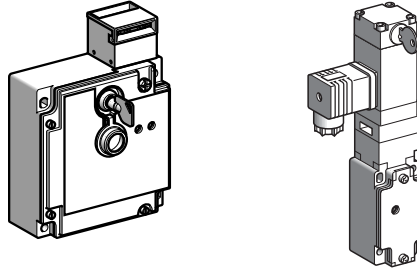
Safety interlock switches, actuator operated
with solenoid interlocking

Metal, type XCSE and XCSL

Plastic, double insulated, type XCSTE

Metal, type XCSE and XCSL

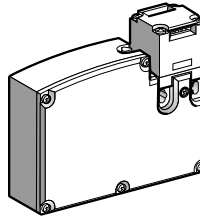
Safety interlock switches with locking of the actuator



Page 6/284

Plastic, type XCSTE

Safety interlock switches with locking of the actuator



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Environmental specifications

Safety interlock switch type		XCSE and XCSL (metal)	XCSTE (plastic)
Conformity to standards	Products	EN/IEC 60947-5-1, UL 508, CSA C22-2 n° 14	
	Machine assemblies	EN/IEC 60204-1, EN/ISO 14119	
Product certifications		UL, CSA	UL, CSA
Maximum safety level (1)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508	
Reliability data B _{10d}		5,000,000 (data value for a service life of 10 years can be limited by contact and mechanical wear)	
Protective treatment		Standard version: "TC"	
Ambient air temperature	For operation	- 13 to + 104°F (- 25 to + 40°C)	- 13 to + 140°F (- 25 to + 60°C)
	For storage	- 40 to + 158°F (- 40 to + 70°C)	
Vibration resistance		5 gn (10–500 Hz) conforming to EN/IEC 60068-2-6	
Shock resistance		10 gn (duration 11 ms) conforming to EN/IEC 60068-2-27	
Electric shock protection		Class I conforming to EN/IEC 60536	Class II conforming to EN/IEC 60536
Degree of protection		IP 67 conforming to EN/IEC 60529 and EN/IEC 60947-5-1 (2)	
Cable entry		2 entries tapped ISO M20 x 1.5 (clamping capacity 7 to 13 mm) or tapped for n° 13 (Pg 13.5) cable gland conforming to NFC 68-300 (clamping capacity 8 to 12 mm) or for 1/2" NPT (USAS B2-1) conduit	1 entry tapped M16 x 1.5 (clamping capacity 4.5 to 10 mm) or tapped for n° 11 (Pg 11) cable gland conforming to NFC 68-300 (clamping capacity 7 to 10 mm) or for 1/2" NPT conduit using metal adapter DE9 RA1012 in n° 11 (Pg 11) tapped entry
Materials		Zamak case	Polyamide PA66 fibreglass impregnated case

Actuators (all types): steel XC60, surface treated

(1) Using an appropriate and correctly connected control system.

(2) Live parts of these switches are protected against the penetration of dust and water.

However, when installing take all necessary precautions to prevent the penetration of solid bodies, or liquids with a high dust content, into the actuator aperture. Not recommended for use in saline atmospheres.

Limit switches
Safety interlock switches, actuator operated
with solenoid interlocking
Metal, type XCSE and XCSL
Plastic, double insulated, type XCSTE

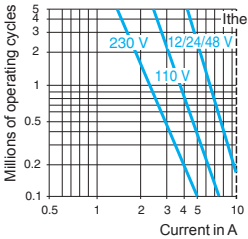
Contact block specifications			
Rated operational specifications		2 and 3 contact, slow break	XCSE, XCSL, XCSTE: ~ AC-15, B300: Ue = 240 V, Ie = 1.5 A or Ue = 120 V, Ie = 3 A All models: --- DC-13, Q300: Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A conforming to EN/IEC 60947-5-1
Conventional thermal current in enclosure			XCSE, XCSL, XCSTE 2 and 3 slow break contact versions: Ithe = 6 A
Rated insulation voltage		2 and 3 contact	3 contact (XCSE and XCSL), 2 contact (XCSTE): Ui = 500 V conforming to EN/IEC 60947-1; Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage		2 and 3 contact	3 contact (XCSE and XCSL), 2 contact (XCSTE): Uimp = 6 kV conforming to EN/IEC 60947-5-1
Positive operation			N.C. contacts with positive opening operation conforming to EN/IEC 60947-5-1, Section 3
Resistance across terminals			≤ 30 mΩ conforming to EN/IEC 60947-5-4
Short-circuit protection		2 and 3 contact	3 contact (XCSE and XCSL), 2 contact (XCSTE): 10 A cartridge fuse type gG (gl)
Connection		Screw clamp terminals 2 and 3 contact	3 contact (XCSE and XCSL), 2 contact (XCSTE): Clamping capacity, min: 1 x 20 AWG (0.5 mm²), max: 2 x 14 AWG (1.5 mm²) with or without cable end
Complementary specifications			
Actuation speed			Maximum: 19.7 in./s (0.5 m/s), minimum: 0.39 in./s (0.01 m/s)
Resistance to forcible withdrawal of actuator			XCSE: 450 lb (2000 N); XCSL: 337 lb (1500 N); XCSTE: 112 lb (500 N)
Maximum operating rate			For maximum life: 600 operating cycles per hour
Minimum force for extraction of actuator			≥ 4.5 lb (≥ 20 N)
Materials			Body and head: zamak (XCSE and XCSL) Body and head: polyamide PA66, fibreglass impregnated (XCSTE)
Electrical life			

Conforming to EN/IEC 60947-5-1 Appendix C.
Utilization categories AC-15 and DC-13.
Maximum operating rate: 3600 operating cycles/hour.
Load factor: 0.5

AC supply
50/60 Hz ~
~ inductive circuit

DC supply ---
Power broken in W for
5 million operating cycles.

3 contact XCSE and XCSL and 2 contact XCSTE version, slow break



Voltage	V	24	48	120
~	W	13	9	7

Electrical Life

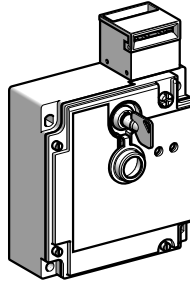
The product life expressed is based on average usage and normal operating conditions. Actual operating life will vary with conditions. The above statements are not intended to nor shall they create any express or implied warranties as to product operation or life. For information on the limited warranty offered on this product please refer to the Square D terms and conditions of sale found in the Digest.

Limit switches

Safety interlock switches, actuator operated
Solenoid interlocking
Metal, turret head (1), type XCSE
Conduit entries tapped 1/2" NPT

Type of switch

With interlocking, locking by solenoid



Type of interlocking	Locking without power and unlocking on energization of solenoid (2). To order a safety interlock switch with locking with power and unlocking on de-energization of the solenoid, replace the 2nd number (3) by 5 in the catalog numbers shown below. Example: XCSE5313 becomes XCSE5513	
LED indication	Orange LED: "guard open" signalling. Green LED: "guard closed and locked" signalling.	
Supply voltage of solenoid	$\sim$ or --- 24 V (50/60 Hz on $\sim$)	$\sim$ or c 110/120 V (3) (50/60 Hz on $\sim$)
Type of contact on solenoid	N.C. + N.O.	N.C. + N.O.

Catalog numbers of switches without actuating key ($\ominus$ N.C. contact with positive opening operation)

3-pole N.C. + N.O. + N.O. (2 N.O. staggered) slow break (4)		XCSE5313	XCSE5333
		$\ominus$	$\ominus$
3-pole N.C. + N.C. + N.O. (N.O. staggered) slow break (4)		XCSE7313	XCSE7333
		$\ominus$	$\ominus$
3-pole N.C. + N.C. + N.C. slow break (4)		XCSE8313	XCSE8333
		$\ominus$ (5)	$\ominus$
Weight lb (kg)	2.51 (1.140)		

6

Solenoid specifications

Load factor	100 %	
Rated operational voltage	$\sim$ or --- 24 V	$\sim$ or --- 110/120 V
Voltage limits	- 20%, + 10% of the rated operational voltage (including ripple on ---) conforming to IEC/EN 60947-1	
Service life	20,000 hours	
Power consumption	Inrush: 10 VA. Sealed: 10 VA	

LED indicator specifications

Rated insulation voltage	50 V conforming to IEC/EN 60947-1	250 V conforming to IEC/EN 60947-1
Current power consumption	7 mA	7 mA
Rated operational voltage	$\sim$ or --- 24/48 V	$\sim$ 110/240 V
Voltage limits	$\sim$ or --- 20–52 V (including ripple)	$\sim$ 95–264 V (including ripple)
Service life	100,000 hours	100,000 hours
Protection against overvoltages	Yes	Yes

(1) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.

(2) A key operated lock enables forced opening of the interlocking mechanism, by authorized personnel, allowing withdrawal of the actuating key and subsequent opening of the N.C. safety contacts.

(3) For use on --- 110/120 V, remove the LED module.

(4) Wiring diagrams shown represent the contact states while the actuating key is inserted in the head of the switch.

(5) Switches supplied with a single green LED.

(6) The N.O. contacts will close after the N.C. contacts open. They do not change state simultaneously.

The devices listed above are threaded for 1/2" NPT, and are available with metric conduit:

To order devices tapped for 13mm cable gland, conforming to NF C 68-300 (DIN Pg 13.5): Change the last character in the part number to 1

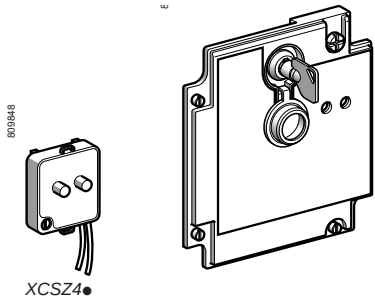
For example: XCSE7333 is changed to XCSE7331

To order devices tapped for M20 x 1.5 for ISO cable gland: Change the last character in the part number to 2

For example: XCSE7333 is changed to XCSE7332

To order devices with pre-wired connectors, refer to pages 6/300 and 6/301.

Limit switches
Safety interlock switches, actuator operated
Solenoid interlocking
Metal turret head, type XCSE



Separate components

Description	For use with	Supply voltage	Catalog number	Weight lb (kg)
1 orange LED + 1 green LED indicator module with cover + lock (1), seal and 4 mounting screws (2) keys included for lock)	XCSE73	~ or 24/48 V	XCSZ43	0.39 (0.175)

(1) Lock incorporated as standard on safety interlock switches XCSE: key withdrawal in LOCK and UNLOCK positions.

Description	For use with	Key withdrawal positions from lock	Unit catalog number	Weight lb (kg)
Blanking plugs for operating head slot (Sold in lots of 10)	XCSE	–	XCSZ27	0.11 (0.050)

Tubular high security keys to manually unlock and open guards (Sold in lots of 10)	XCSE	–	XCSZ25	0.22 (0.100)
--	------	---	--------	--------------

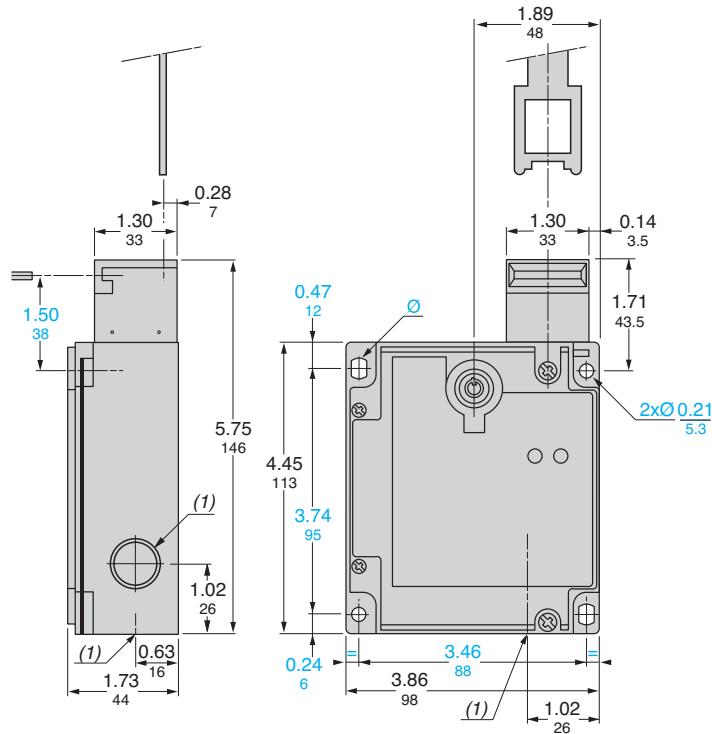
Padlocking attachment to prevent insertion of actuator, for up to 3 padlocks (padlocks not included) The padlock attachment cannot be used as a lock-out tag-out means	XCSE	–	XCSZ90	0.12 (0.055)
--	------	---	--------	--------------

Description	For use with	Unit catalog number	Weight kg
Conduit adapter, M20 to 1/2" NPT (Sold in lots of 5)	XCSE	DE9RA2012	0.11 (0.048)
Conduit adapter, Pg 13.5 to M20 x 1.5 (Sold in lots of 5)	XCSE	DE9RA13520	0.02 (0.010)

Dimensions in. (mm)

Safety interlock switches

XCSE●●●●



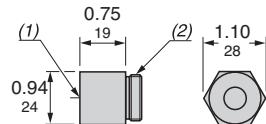
(1) 1 tapped entry for cable gland.

Ø: 2 elongated holes Ø 0.21 x 0.29 in. (5.3 x 7.3 mm)

6

M20 x 1.5 adapter

DE9RA13520

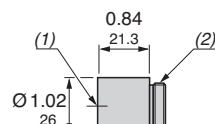


(1) M20 x 1.5 tapped entry

(2) Pg 13.5 threaded shank

1/2" NPT conduit adapter

DE9RA2012



(1) Tapped entry for 1/2" NPT conduit

(2) M20 x 1.5 threaded shank

Dual Dimensions: INCHES
Millimeters

Limit switches

Safety interlock switches, actuator operated
Solenoid interlocking
Metal turret head, type XCSE

Setup

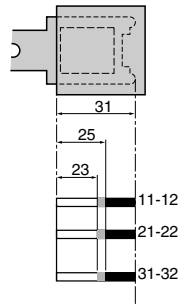
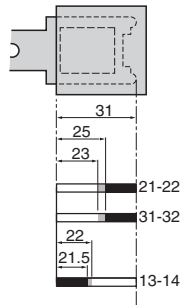
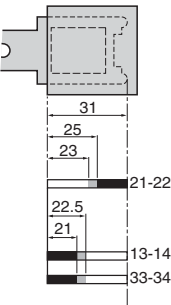
Functional diagrams

XCS5000

XCS7000

XCS8000

Contact operation

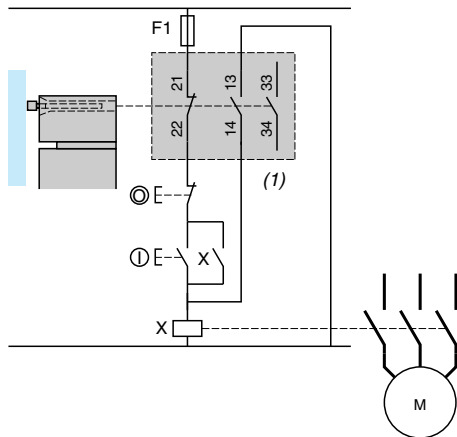


■ Closed
□ Open
■ Unstable

Wiring diagrams Note: These wiring diagrams are given as examples only, the designer must refer to the relevant safety standards for guidance.

Wiring to PL=b, category 1 conforming to EN/ISO 13849-1

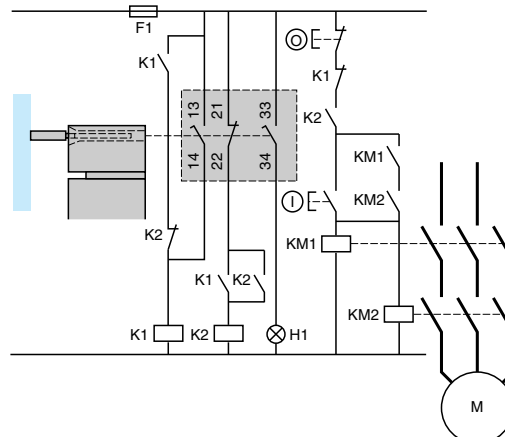
Example with 3-pole N.C. + N.O. + N.O. contact and protection fuse to prevent jumpering of the N.C. contact, either by cable damage or by tampering.



(1) Signaling contact

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

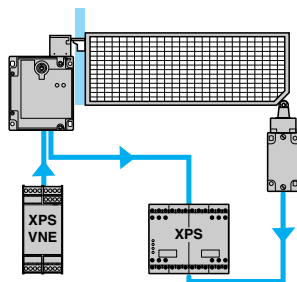
Example with 3-pole N.C. + N.O. + N.O. contact with mixed redundancy of the contacts and the associated control relays. To activate K1, it is necessary to remove and re-insert the actuator when the supply is switched on.



H1: "actuator not inserted" indicator

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Wiring method used in conjunction with Preventa safety relay module (The safety interlock switch should be used in conjunction with a safety limit switch to give electrical/mechanical redundancy).

Method for machines with long rundown time (high inertia)



Interlocking device for actuator mounted on guard and zero speed detection.

Limit switches

Safety interlock switches, actuator operated

Solenoid interlocking

Metal turret head, type XCSE

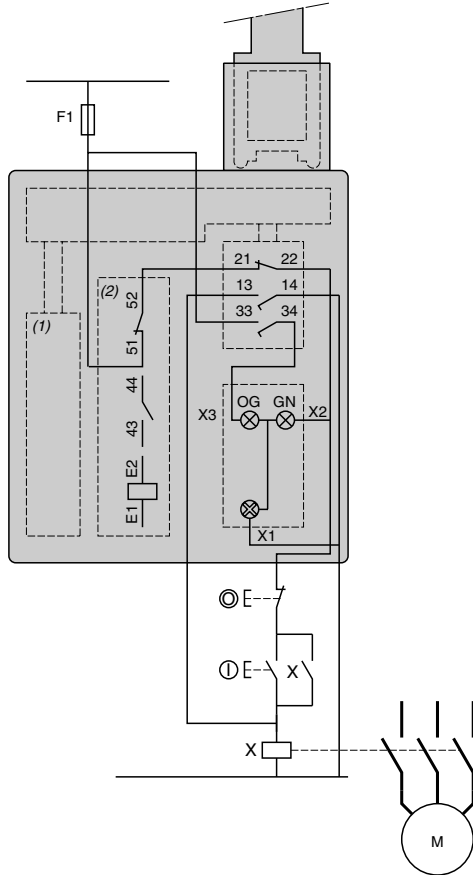
Wiring to PL=b, category 1 conforming to EN/ISO 13849-1

Wiring examples with protective fuse to prevent jumpering of the N.C. contact, either by cable damage or by tampering.

Note: These wiring diagrams are provided as examples only. The designer must refer to relevant safety standards for guidance.

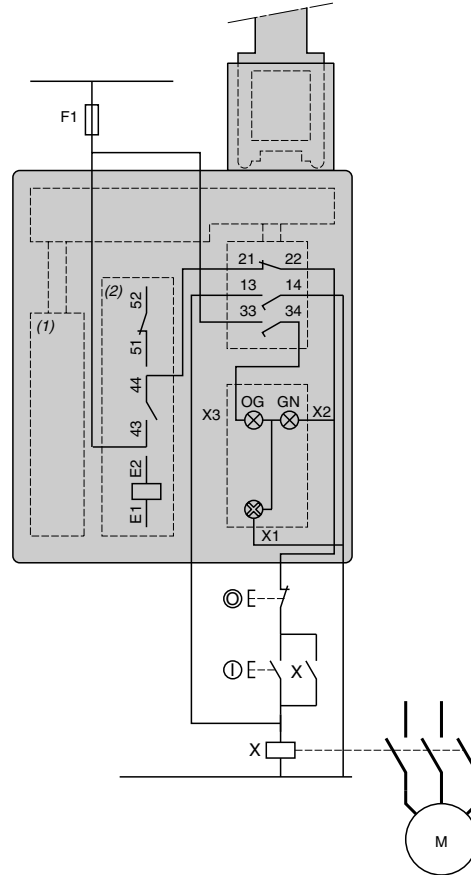
Locking without power, N.C. + N.O. + N.O.

XCSE53●●



Locking with power, N.C. + N.O. + N.O.

XCSE55●●



(1) Solenoid

(2) Auxiliary contact

E1-E2: Solenoid supply

43-44: Solenoid signalling contact

13-14: Safety contact, available for redundancy

33-X1: LED (orange): actuating key withdrawn

51-X1: LED (green): actuating key inserted and locked

21-52: Safety pre-wiring provided

(1) Solenoid

(2) Auxiliary contact

E1-E2: Solenoid supply

51-52: Solenoid signalling contact

13-14: Safety contact, available for redundancy

33-X1: LED (orange): actuating key withdrawn

43-X1: LED (green): actuating key inserted and locked

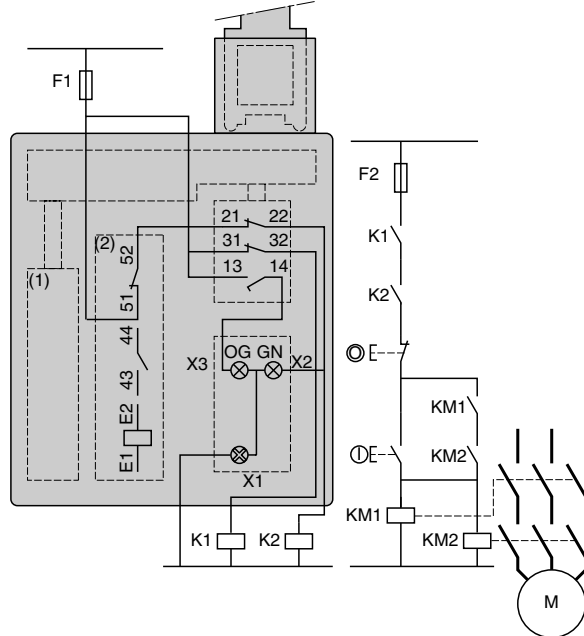
21-44: Safety pre-wiring provided

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

Wiring examples with redundancy for the switch contacts, without monitoring or redundancy in the power circuit

Locking without power, N.C. + N.C. + N.O.

XCSE73●●



(1) Solenoid

(2) Auxiliary contact

E1-E2: Solenoid supply

43-44: Solenoid signalling contact

21-22 and 31-32: Safety contacts, available for redundancy

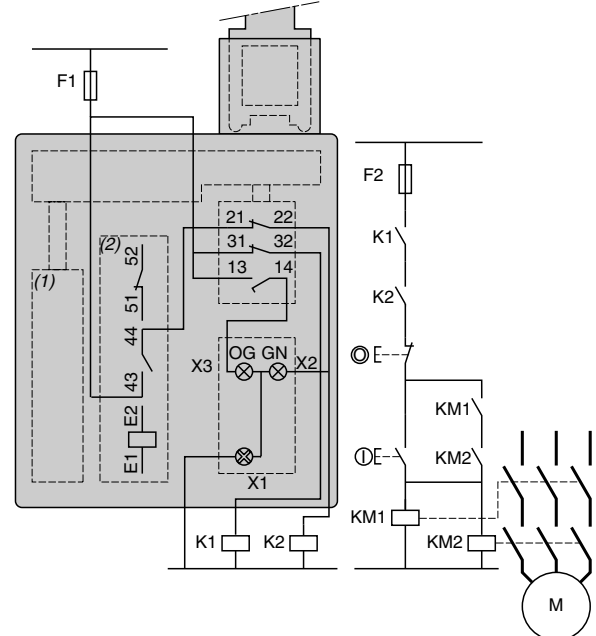
13-X1: LED (orange): actuating key withdrawn

51-X1: LED (green): actuating key inserted and locked

21-52: Safety pre-wiring provided

Locking without power, N.C. + N.C. + N.O.

XCSE75●●



(1) Solenoid

(2) Auxiliary contact

E1-E2: Solenoid supply

51-52: Solenoid signalling contact

21-22 and 31-32: Safety contacts, available for redundancy

13-X1: LED (orange): actuating key withdrawn

43-X1: LED (green): actuating key inserted and locked

21-44: Safety pre-wiring provided

Note: These wiring diagrams are given as examples only, the designer must refer relevant safety standards for guidance.

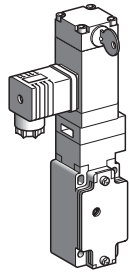
Limit switches

Safety interlock switches, actuator operated

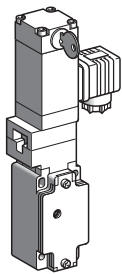
Solenoid interlocking

Metal, fixed head, type XCSL

Conduit entries tapped 1/2" NPT



XCSL764F3



XCSL766F3

Metal, type XCSL, conduit entry tapped 1/2" NPT - locking without power

Positive opening N.C. contacts meet the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (positive opening action).

Standard devices are shown on pages 6/290 and 6/291. If these devices do not meet your application requirements, refer to page 6/292 to build a part number.

Type of switch	With interlocking, locking by electromagnet (1)					
Type of interlocking	Locking without power. Actuating key locks into switch when inserted. This is typically preferred, as the door is secured regardless of electrical power availability or power failure. Applying power to the electromagnet will unlock actuating key and allow it to be removed from the switch. Applying power to the electromagnet will open the N.C. safety contacts as well.					
Position of head (for actuating key)	To right			To left		
Position of electromagnet connector	To left			To right		
Position of Ronis key release lock	Front			Front		
LED indication	Orange LED: "guard open" signaling					
Supply voltage of electromagnet	24 Vdc	120 Vac or Vdc (2)	230 Vac or Vdc (2)	24 Vdc	120 Vac or Vdc (2)	230 Vac or Vdc (2)

Catalog nos. of switches without actuating key (select actuating key from page 6/293)

N.C. + N.O. + N.O. (2 N.O. staggered) slow break (3) (4)		XCSL564B3	XCSL564F3	XCSL564M3	XCSL566B3	XCSL566F3	XCSL566M
N.C. + N.C. + N.O. (N.O. staggered) slow break (3) (4)		XCSL764B3	XCSL764F3	XCSL764M3	XCSL766B3	XCSL766F3	XCSL766M
Weight lb (kg)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)

(1) A Ronis key operated lock allows the forced opening of the guard in an emergency situation. When the Ronis key is turned to the unlock position, the actuating key is unlocked and is free to be removed from the switch. The N.C. safety contacts will open when the Ronis key is turned to the unlock position as well.

(2) For use on 110/120 Vdc or 220/240 Vdc, remove the LED indicator module.

(3) Schematic diagrams shown represent the contact states while the actuating key is fully inserted and engaged in the head of the switch.

(4) The N.O. contacts will close after the N.C. contacts open. They do not change state simultaneously.

Only the N.C. contacts should be used in the safety control circuit. The N.O. contacts are provided solely for signalling – NOT for safety functions.

Actuating head, solenoid and related components are NOT field convertible and should not be rotated or modified.

The only replacement parts or components available are covers and LED indicator modules. These devices are not to be repaired or adjusted. The complete switch should be replaced.

Additional specifications not shown under General Specifications (pages 6/282 and 6/283)

Actuation speed	Maximum: 19.7 in/s (0.5 m/s), Minimum: 0.39 in/s (0.01 m/s)
Resistance to forcible key withdrawal	XCSL: 337 lbs. (1500 N)
Maximum operating rate	For maximum life: 600 operating cycles per hour, i.e.: 10/min. (or once in 6 seconds)
Minimum force for positive opening	4.5 lbs (20 N)
Conduit entry	XCSL: 1 entry. Conduit entry tapped for 1/2" NPT

Electromagnetic specifications

DC electromagnet is supplied on all XCSL models. For use with an AC power supply, a bridge rectifier is supplied in the connector on all AC devices.

Load factor	100%		
Rated operational voltage	24 Vac or Vdc	110/120 Vac or Vdc	220/240 Vac or Vdc
Voltage limits	-10%, +10% of the rated operational voltage (including ripple on) conforming to IEC 60947-1		
Power consumption	Inrush: 10 VA. Sealed: 10 VA		

LED indicator specifications

Rated operational voltage	24 Vac or Vdc	110 Vac	220 Vac
Rated insulation voltage	50 V conforming to IEC 60947-1	250 V conforming to IEC 60947-1	
Current power consumption	7 mA	2.5 mA	5 mA
Voltage limits	20–30 Vac or Vdc (including ripple)	95–130 Vac (including ripple)	190–260 Vac (including ripple)
Protection against over voltages	Yes	Yes	

The devices listed above are threaded for 1/2" NPT, and are available with metric conduit:

- To order devices tapped for 13mm cable gland, conforming to NF C 68-300 (DIN Pg 13.5): Change the last character in the part number to 1
For example: XCSL764B3 is changed to XCSL764B1
- To order devices tapped for M20 x 1.5 for ISO cable gland: Change the last character in the part number to 2
For example: XCSL764B3 is changed to XCSL764B2

To order devices with pre-wired connectors, refer to pages 6/300 and 6/301.

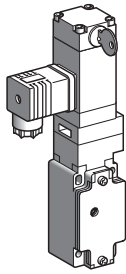
Limit switches

Safety interlock switches, actuator operated

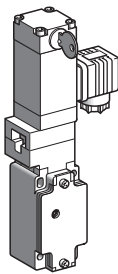
Solenoid interlocking

Metal, fixed head, type XCSL

Conduit entries tapped 1/2" NPT



XCSL784F3



XCSL786F3

Metal, type XCSL, conduit entry tapped 1/2" NPT, locking with power

Positive opening N.C. contacts meets the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (positive opening action).

Standard devices are shown on pages 6/290 and 6/291. If these devices do not meet your application requirements, refer to page 6/292 to build a part number.

Note: "Locking with power" devices do not meet European standards regarding the safety of machinery, especially EN 1088 regarding guard locking. European standards do not allow a "locking with power" function for gate or door guarding/locking. Locking without power devices meet European requirements, and should be used when machinery is to be shipped to Europe or where machinery must meet European standards.

Type of switch

Type of interlocking

With interlocking, locking by electromagnet ⁽¹⁾

Locking with power. Actuating key locks into switch only when actuating key is inserted and power is applied to the electromagnet. Door or guard is not locked in the event of a power failure or when power is removed from the electro-magnet. Removing power from the electromagnet will unlock actuating key and allow it to be removed from the switch. Removing power to the electromagnet will open the N.C. safety contacts as well.

Position of head (for actuating key)	To right			To left		
Position of electromagnet connector	To left			To right		
Position of Ronis key release lock	Front			Front		
LED indication	Orange LED: "guard open" signaling					
Supply voltage of electromagnet	24 Vdc	120 Vac or Vdc (2)	230 Vac or Vdc (2)	24 Vdc	120 Vac or Vdc (2)	230 Vac or Vdc (2)

Catalog nos. of switches without actuating key (select actuating key from page 6/293)

N.C. + N.O. + N.O. (2 N.O. staggered) slow break (3) (4)		XCSL584B3	XCSL584F3	XCSL584M3	XCSL586B3	XCSL586F3	XCSL586M3
N.C. + N.C. + N.O. (N.O. staggered) slow break (3) (4)		XCSL784B3	XCSL784F3	XCSL784M3	XCSL786B3	XCSL786F3	XCSL786M3
Weight lb (kg).	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)	2.03 (0.920)

(1) A Ronis key operated lock allows the forced opening of the guard in an emergency situation. When the Ronis key is turned to the unlock position, the actuating key is unlocked and is free to be removed from the switch. The N.C. safety contacts will open when the Ronis key is turned to the unlock position as well.

(2) For use on 110/120 Vdc or 220/240 Vdc, remove the LED indicator module.

(3) Schematic diagrams shown represent the contact states while the actuating key is fully inserted and engaged in the head of the switch.

(4) The N.O. contacts will close after the N.C. contacts open. They do not change state simultaneously.

Only the N.C. contacts should be used in the safety control circuit. The N.O. contacts are provided solely for signalling – NOT for safety functions.

Actuating head, solenoid and related components are NOT field convertible and should not be rotated or modified.

The only replacement parts or components available are covers and LED indicator modules. **These devices are not to be repaired or adjusted.** The complete switch should be replaced.

Additional specifications not shown under General Specifications (pages 6/282 and 6/283)

Actuation speed	Maximum: 19.7 in/s (0.5 m/s), Minimum: 0.39 in/s (0.01 m/s)
Resistance to forcible key withdrawal	XCSL: 337 lbs. (1500 N)
Maximum operating rate	For maximum life: 600 operating cycles per hour, i.e.: 10/min. (or once in 6 seconds)
Minimum force for positive opening	4.5 lbs (20 N)
Conduit entry	XCSL: 1 entry. Conduit entry tapped for 1/2" NPT

Electromagnetic specifications

DC electromagnet is supplied on all XCSL models. For use with an AC power supply, a bridge rectifier is supplied in the connector on all AC devices.

Load factor	100%		
Rated operational voltage	24 Vac or Vdc	110/120 Vac or Vdc	220/240 Vac or Vdc
Voltage limits	-10%, +10% of the rated operational voltage (including ripple on) conforming to IEC 60947-1		
Power consumption	Inrush: 10 VA. Sealed: 10 VA		

LED indicator specifications

Rated operational voltage	24 Vac or Vdc	110/240 Vac	220 Vac
Rated insulation voltage	50 V conforming to IEC 60947-1	250 V conforming to IEC 60947-1	
Current power consumption	7 mA	7 mA	5 mA
Voltage limits	20–30 Vac or Vdc (including ripple)	95–264 Vac (including ripple)	190–260 Vac (including ripple)
Protection Against Over voltages	Yes	Yes	

The devices listed above are threaded for 1/2" NPT, and are available with metric conduit:

- To order devices tapped for 13mm cable gland, conforming to NF C 68-300 (DIN Pg 13.5): Change the last character in the part number to 1
For example: XCSL784B3 is changed to XCSL784B1
- To order devices tapped for M20 x 1.5 for ISO cable gland: Change the last character in the part number to 2
For example: XCSL784B3 is changed to XCSL784B2

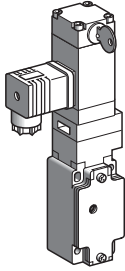
To order devices with pre-wired connectors, refer to pages 6/300 and 6/301.

Limit switches

Safety interlock switches, actuator operated

Solenoid interlocking

Metal, fixed head, type XCSL



Metal, type XCSL, conduit entry tapped 1/2" NPT

Positive opening N.C. contacts meets the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (positive opening action).

If the devices shown on pages 6/290 and 6/291 do not meet your application needs, use the table below to build a part number. A complete part number requires a code character from each of the following columns: Base number, Ronis key position, Actuating key and Connector, Electromagnet voltage, and Conduit connection. A code character column connector is optional, and is only used if a connector is required for the application.

All devices have an Orange LED as standard.

Catalog nos. of switches without actuating key (select actuating key from page 6/293)

	Base number	Ronis key position	Actuating key and connector	Electromagnet voltage	Conduit connection	Connector (Optional)
Contact arrangement						
N.C. + N.O. + N.O.	XCSL5					
N.C. + N.C. + N.O.	XCSL7					
Locking without power						
Front		6				
Right		2				
Left		0				
Back		4				
Locking with power						
Note: A Ronis key lock is NOT provided on the Locking With power devices.		8				
Actuating key and connector position						
Actuating key position	Connector position					
Front	Left		1			
	Right		2			
	Back		3			
Right	Left		4			
	Front		5			
Left	Right		6			
	Front		7			
	Left		8			
Back	Right		9			
	Front		0			
Electromagnet supply voltage						
24 Vdc				B		
110 Vac				F		
220 Vac				M		
Conduit connection						
PG 13.5					1	
M20 x 1.5					2	
1/2 inch NPT					3	
Connector (optional)						
5-pin Mini (LEDs not wired/powerd)						CA
6-pin Mini (use with LEDs)						DA

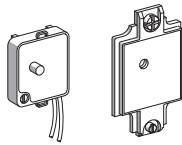
Type of interlocking

Locking without power. Actuating key locks into switch when inserted. This is typically preferred as the door is secured regardless of electrical power availability or power failure. Applying power to the electromagnet will unlock actuating key and allow it to be removed from the switch. Applying power to the electromagnet will open the N.C. safety contacts as well.

Locking with power. Actuating key locks into switch only when actuating key is inserted and power is applied to the electromagnet. Door or guard is not locked in the event of a power failure or when power is removed from the electromagnet. Removing power from the electromagnet will unlock actuating key and allow it to be removed from the switch. Removing power to the electromagnet will open the N.C. safety contacts as well.

Note: Locking with power devices do not meet European standards regarding the safety of machinery, especially EN 1088 regarding guard locking. European standards do not allow a "locking with power" function for gate or door guarding/locking. Locking without power devices meet European requirements, and should be used when machinery is to be shipped to Europe or where machinery must meet European standards.

To order devices with pre-wired connectors, refer to pages 6/300 and 6/301.



XCSZ33



BH206

ZCKJ921



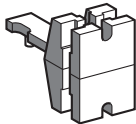
ZCKY071



ZCKY081



ZCKY091



ZCKY061



ZCKY101



ZCKZ01

Actuating keys and accessories, for XCSL only

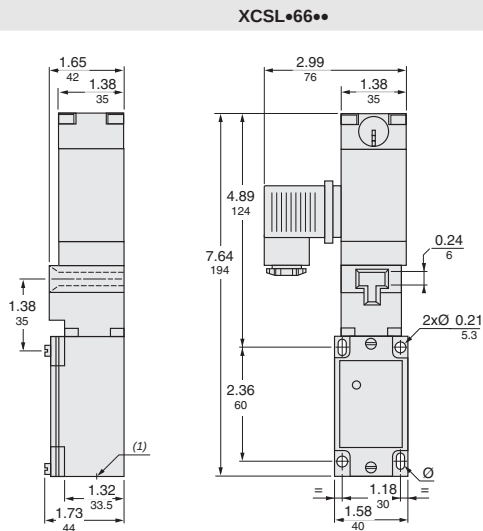
Description	Type	Catalog number
Indicator light module, 1 orange LED with cover, seal, and 2 mounting screws.	24/48 Vac or Vdc	XCSZ33
	110/230 Vac	XCSZ34
Connector for electromagnet (supplied with switches as standard)	DC	ZCKJ921
	AC Contains a rectifier bridge inside connector for use on AC	ZCKJ922
Plug and cable assemblies mini-style 5-pins *	Cable 6.6 ft. (2m) length	XSZCA1501Y
	Cable 13.1 ft. (4m) length	XSZCA1502Y
Plug and cable assemblies mini-style 6-pins *	Cable 6.6 ft. (2m) length	XSZCA1601Y
	Cable 13.1 ft. (4m) length	XSZCA1602Y
Straight actuating key		ZCKY071
Actuating key for perpendicular mounting/mounting		ZCKY081
Adjustable actuating key for Horizontal movement		ZCKY091
Adjustable actuating key for Vertical movement		ZCKY061
Sliding bolt actuating key		ZCKY101
Overriding key: Ronis 520 key (sold in lots of 2)		Q9990912
Padlock attachment to lock into actuating key opening. Painted yellow. Prevents actuating key from entering switch. Note: Cannot be used as a lock-out tag-out means.		ZCKZ01

* More varieties and lengths of connector cables are available. See Sensors catalog # 9006CT0101.

Limit switches

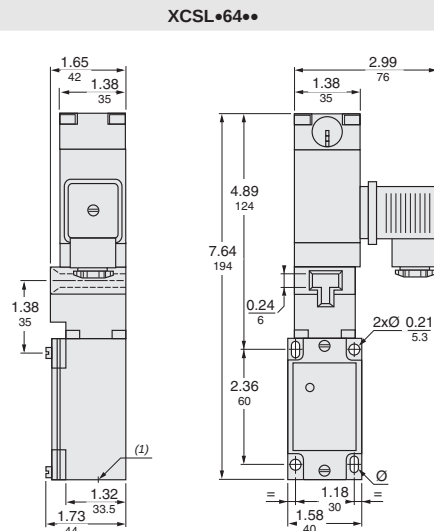
Safety interlock switches, actuator operated
Solenoid interlocking
Metal, fixed head, type XCSL

Metal, turret head, type XCSL dimensions in. (mm)



Ø: 2 elongated holes Ø 0.21 x 0.29 (5.3 x 7.3)

(1) 1 tapped entry for 1/2" NPT conduit entry



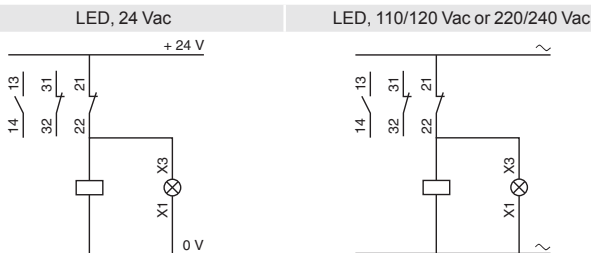
Ø: 2 elongated holes Ø 0.21 x 0.29 (5.3 x 7.3)

(1) 1 tapped entry for 1/2" NPT conduit entry

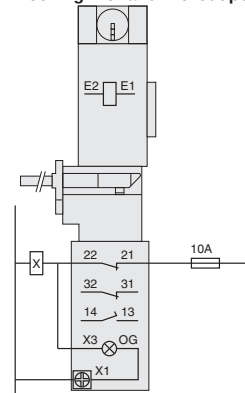
Dual Dimensions: INCHES
Millimeters

Wiring diagrams

Wiring diagram example using a 3-pole N.C. + N.C. + N.O. safety interlock switch
LED wiring
Shown with actuating key inserted

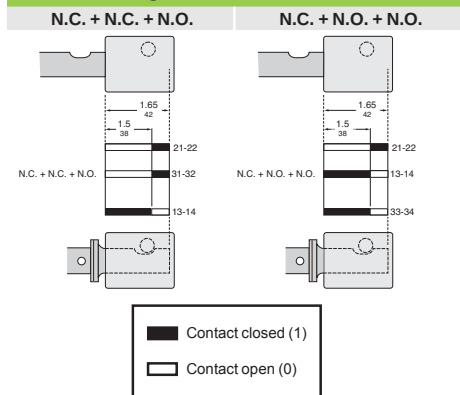


Recommended wiring diagram
Locking with and without power



Contact Status Relative to Actuating key position

Function diagrams



Dual Dimensions: INCHES
Millimeters

Limit switches

Safety interlock switches, actuator operated

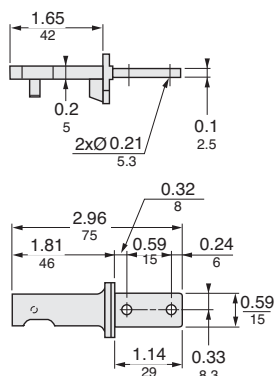
Solenoid interlocking

Metal, fixed head, type XCSL

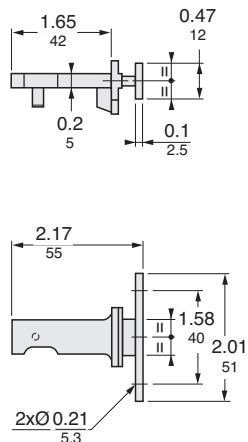
Actuating keys for metal, turret head, type XCSL

Actuating keys

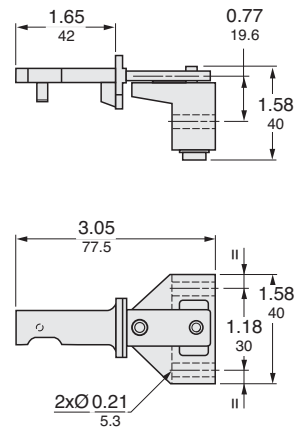
ZCKY071



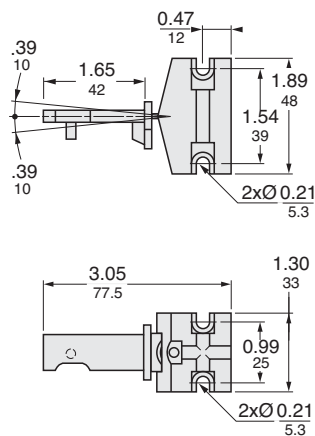
ZCKY081



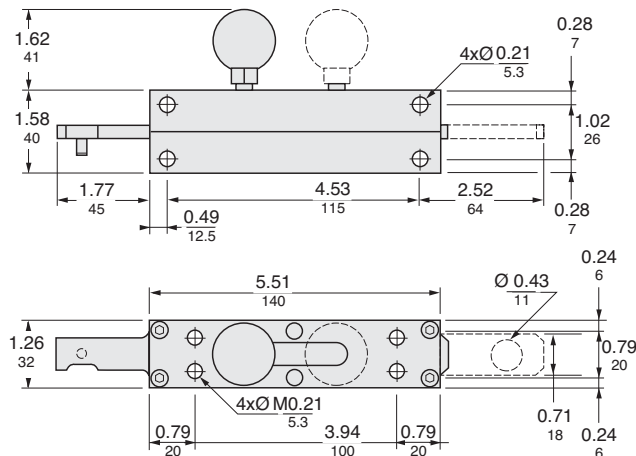
ZCKY091



ZCKY061



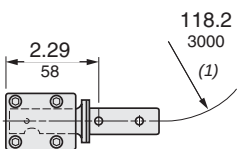
ZCKY101



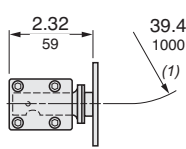
Operating radius required for actuating key

Horizontal mounting

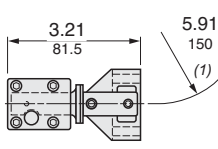
ZCKY071



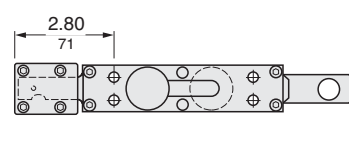
ZCKY081



ZCKY091

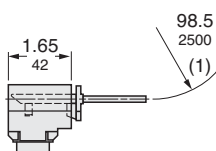


ZCKY101

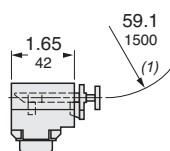


Vertical mounting

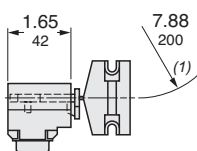
ZCKY071



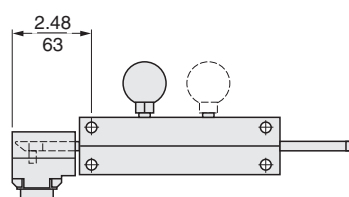
ZCKY081



ZCKY061



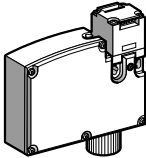
ZCKY101



(1) For mounting the actuating key on hinged guards (minimum radius)

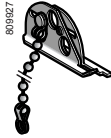
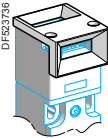
Limit switches

Safety interlock switches, actuator operated
Solenoid interlocking
Plastic, turret head (1), type XCSTE
Conduit entries tapped Pg 11 with 1/2" NPT adapter

Type of switch	With interlocking, locking by solenoid		
			
Type of interlocking	Locking without power and unlocking on energization of solenoid (2). To order a safety interlock switch with locking with power and unlocking on de-energization of the solenoid, replace the 2nd number (3) by 5 in the catalog numbers shown below. Example: XCSTE5313 becomes XCSTE5513.		
Supply voltage of solenoid	~ or --- 24 V (50/60 Hz on ~)	~ or --- 120 V (50/60 Hz on ~)	~ or --- 230 V (50/60 Hz on ~)
Catalog numbers of switches without actuating key (↻ N.C. contact with positive opening operation)			
2-pole N.C. + N.O. (3) break before make slow break	 XCSTE5313 ↻	XCSTE5333 ↻	XCSTE5343 ↻
2-pole N.O. + N.C. (3) make before break slow break	 XCSTE6313 ↻	XCSTE6333 ↻	XCSTE6343 ↻
2-pole N.C. + N.C. (3) slow break	 XCSTE7313 ↻	XCSTE7333 ↻	XCSTE7343 ↻
Weight lb (kg)	0.79 (0.360)	0.79 (0.360)	0.79 (0.360)
Solenoid specifications			
Load factor	100 %		
Rated operational voltage	~ or --- 24 V	~ or --- 120 V	~ or --- 230 V
Voltage limits	- 20%, + 10% of the rated operational voltage (including ripple on ---) conforming to EN/IEC 60947-1		
Service life	20,000 hours		
Power consumption	10 VA max.		
Catalog numbers of actuating keys and guard retaining device			

6

					
Description	Straight actuator	Actuator with wide mounting (4)		Pivoting actuator	Right-angled actuator
For interlock switches XCSPA, TA, TE	XCSZ11	XCSZ12	XCSZ15	XCSZ13	XCSZ14
Weight lb (kg)	0.03 (0.015)	0.03 (0.015)	0.03 (0.012)	0.19 (0.085)	0.06 (0.025)

Catalog numbers of accessories				
	Description	For use with	Unit catalog number	Weight lb (kg)
	Blanking plugs for operating head slot (Sold in lots of 10)	XCSTE	XCSZ28	0.11 (0.050)
	Tool for forced opening of interlocking device (Sold in lots of 10)	XCSTE	XCSZ100	0.11 (0.050)
	Padlocking device to prevent insertion of actuator, for up to 3 padlocks (padlocks not included)	XCSTE	XCSZ91	0.12 (0.053)
	Actuator centering device (Mounting screws included)	XCSTE	XCSZ200	0.05 (0.022)
	1/2" NPT conduit adapter (Sold in lots of 10)	XCSTE	DE9RA1012	0.11 (0.050)

- (1) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.
 (2) A special tool included with the safety interlock switch enables forced opening of the interlocking mechanism, by authorized personnel, allowing withdrawal of the actuating key and subsequent opening of the N.C. safety contacts.
 (3) Wiring diagrams shown represent the contact states while the actuating key is inserted in the head of the switch.
 (4) 2 actuator lengths, XCSZ12: L = 1.57 in. (40 mm), XCSZ15: L = 1.14 in. (29 mm).

The devices listed above are threaded for 1/2" NPT (using the supplied adapter on the XCSTA), and are available with metric conduit:

- To order devices tapped for 11 mm cable gland, conforming to NFC 68-300 (DIN Pg 11): Change the last character in the part number to 1.
For example: XCSTE5313 is changed to XCSTE5311.
- To order devices tapped for M16 x 1.5 for ISO cable gland: Change the last character in the part number to 2. For example: XCSTE5313 is changed to XCSTE5312.

Limit switches

Safety interlock switches, actuator operated

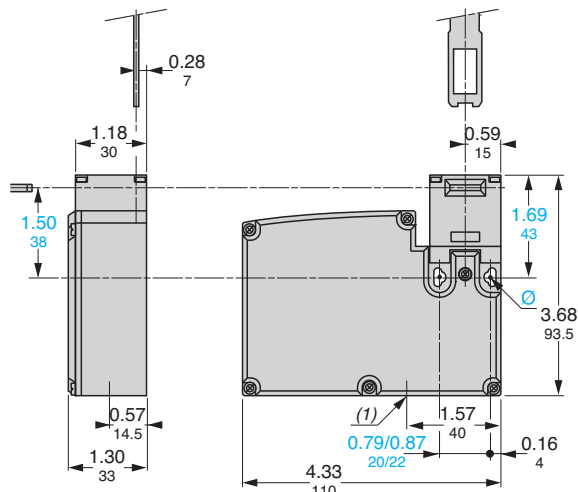
Solenoid interlocking

Plastic turret head, type XCSTE

Dimensions *in. (mm)*

Safety interlock switches

XCSTE●●●●

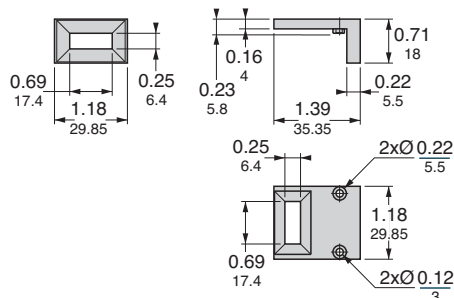


(1) 1 tapped entry for cable gland

Ø: 2 elongated holes Ø 0.17 x 0.33 in. (4.3 x 8.3 mm) on 0.87 in. (22 mm) centers, 2 holes Ø 0.17 in. (4.3 mm) on 0.79 in. (20 mm) centers

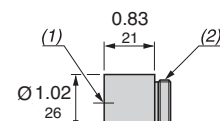
Actuator centering device

XCSZ200



1/2" NPT conduit adapter

DE9RA1012

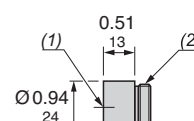


(1) Tapped entry for 1/2" NPT conduit

(2) Pg 11 threaded shank

M16 x 1.5 adapter

DE9RA1016

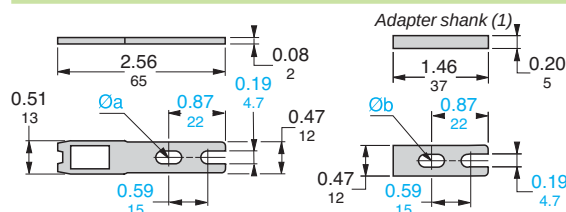


(1) M16 x 1.5 tapped entry

(2) Pg 11 threaded shank

Actuators

XCSZ11

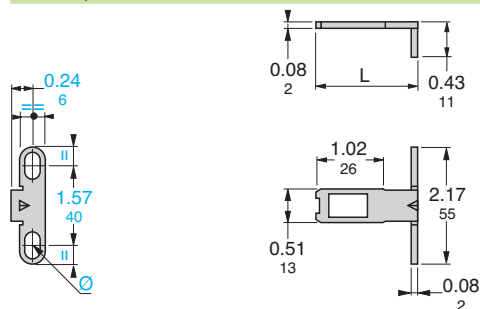


(1) Adapter (included with actuator XCSZ11) for replacing, without drilling additional mounting hole, a safety interlock switch XCKT with actuator XCKY01 by a safety interlock switch XCSTA with actuator XCSZ11.

Ø a: 2 elongated holes Ø 0.19 x 0.39 in. (4.7 x 10 mm)

Ø b: 1 elongated hole for M4 or M4.5 screw

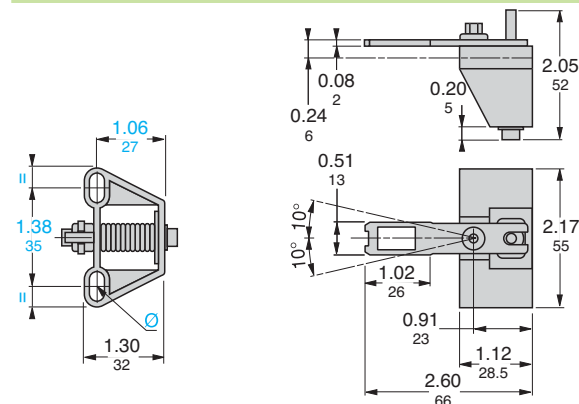
XCSZ12, XCSZ15



Ø: 2 elongated holes Ø 0.19 x 0.39 in. (4.7 x 10 mm)

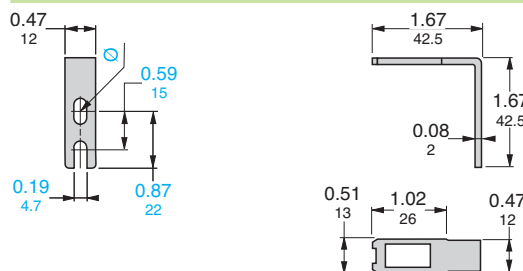
L = 1.57 in. (40 mm) (XCSZ12) or 1.14 in. (29 mm) (XCSZ15)

XCSZ13



Ø: 2 elongated holes Ø 0.19 x 0.39 in. (4.7 x 10 mm)

XCSZ14



Ø: 1 elongated hole Ø 0.19 x 0.39 in. (4.7 x 10 mm)

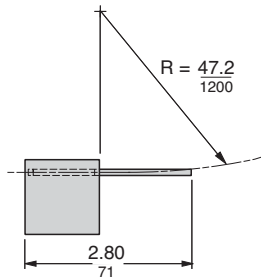
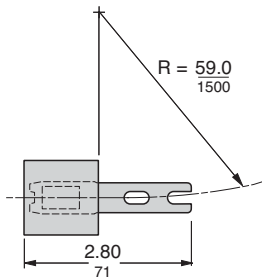
Dual Dimensions: INCHES
Millimeters

Limit switches

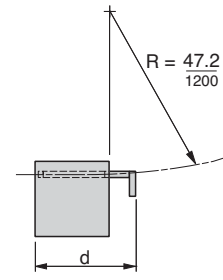
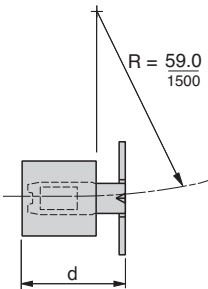
Safety interlock switches, actuator operated
Solenoid interlocking
Plastic turret head, type XCSTE

Operating radius required for actuator

XCSZ11

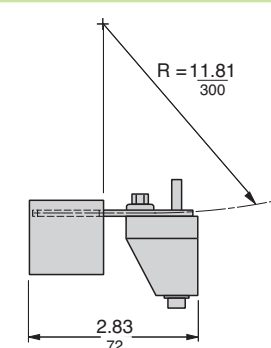
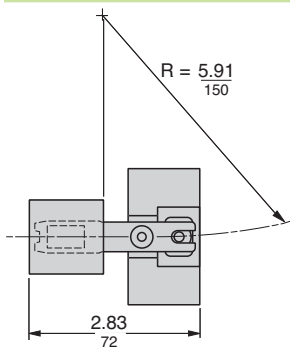


XCSZ12, XCSZ15

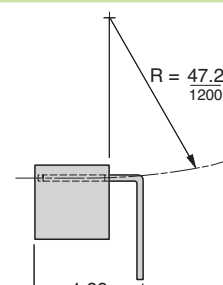
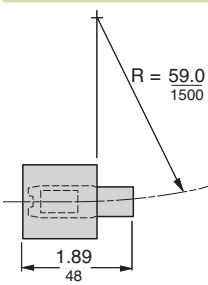


d = 1.81 in. (46 mm) (XCSZ12) or 1.38 in. (35 mm) (XCSZ15)

XCS Z13



XCSZ14



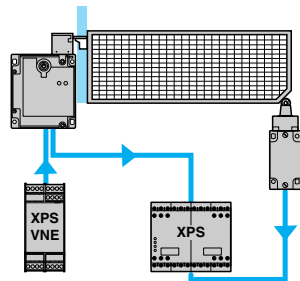
R = minimum radius

Wiring diagrams

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508

(The safety interlock switch should be used in conjunction with a safety limit switch to give electrical/mechanical redundancy)

Method for machines with long rundown time (high inertia)

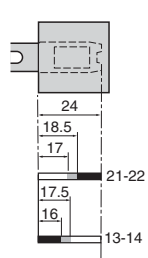


Interlocking device for actuator mounted on guard and zero speed detection.

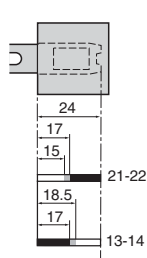
Setup

Functional diagrams

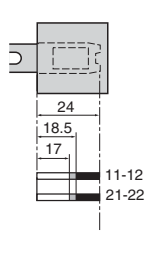
XCSTE5...



XCSTE6...



XCSTE7...



Contact operation

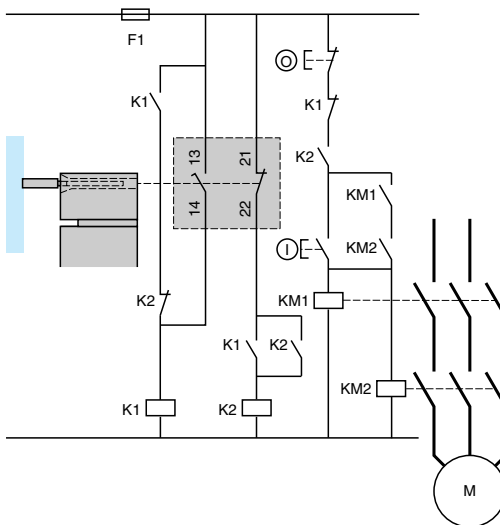
■ Closed

□ Open

■ Unstable

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

Example with 2-pole N.C. + N.O. contact with mixed redundancy of the contacts and the associated control relays. To activate K1, it is necessary to remove and re-insert the actuator when the supply is switched on.



(1) These wiring diagrams are given as examples only, the designer must refer to the relevant safety standards for guidance.

Dual Dimensions: INCHES
Millimeters

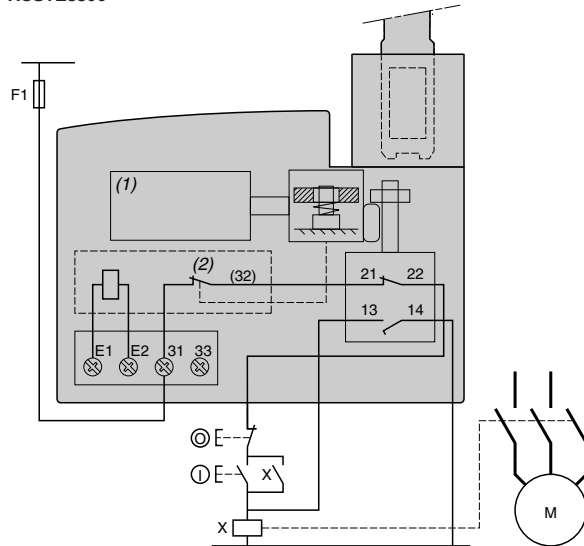
Wiring diagrams (continued)

Wiring to PL=b, category 1 conforming to EN/ISO 13849-1

Wiring examples with protection fuse to prevent jumpering of the N.C. contact, either by cable damage or by tampering.

Locking on de-energization

N.C. + N.O.
XCSTE53●●



(1) Solenoid

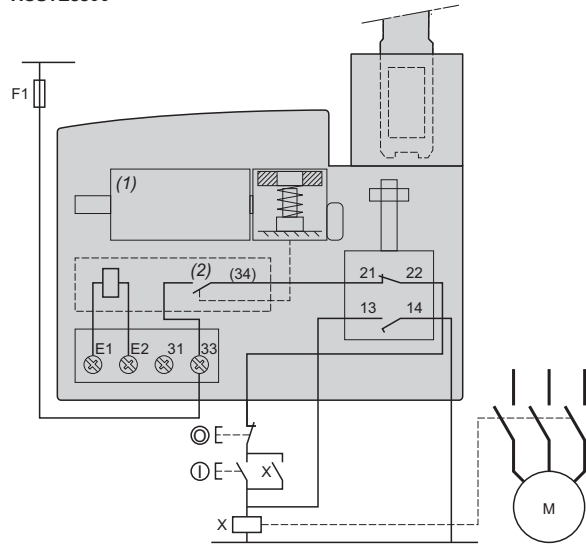
(2) Auxiliary contact

E1-E2: Solenoid supply

13-14: Safety contact, available for redundancy or signalling

Locking on energization

N.C. + N.O.
XCSTE55●●



(1) Solenoid

(2) Auxiliary contact

E1-E2: Solenoid supply

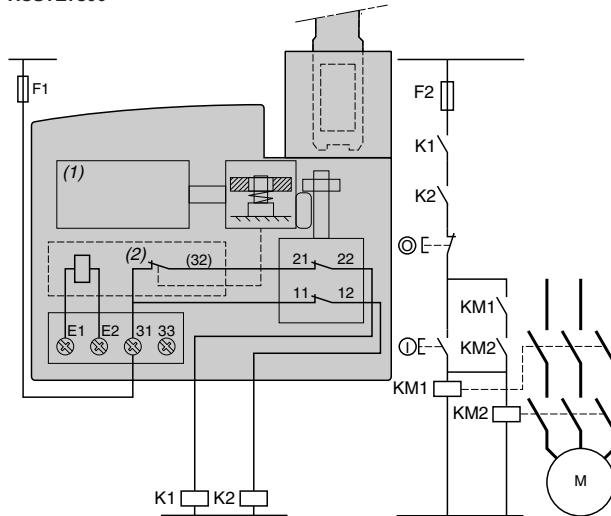
13-14: Safety contact, available for redundancy or signalling

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1

Wiring examples with redundancy for the safety interlock switch contacts, without monitoring or redundancy in the power circuit

Locking on de-energization

N.C. + N.C.
XCSTE73●●



(1) Solenoid

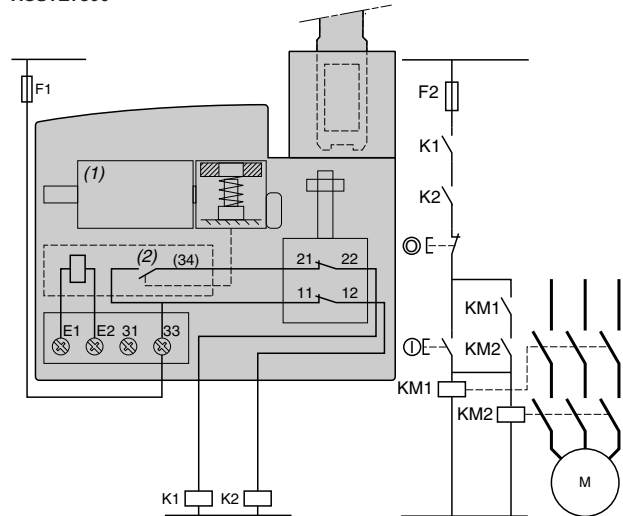
(2) Solenoid auxiliary contact

E1-E2: Solenoid supply

11-12: Safety contact, available for redundancy

Locking on energization

N.C. + N.C.
XCSTE75●●



(1) Solenoid

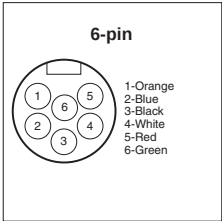
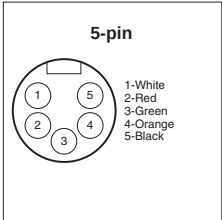
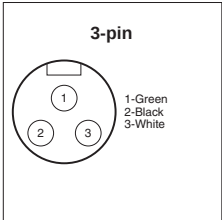
(2) Solenoid auxiliary contact

E1-E2: Solenoid supply

11-12: Safety contact, available for redundancy

Limit switches

Safety interlock switches, actuator operated
Pre-wired connector options
Metal, turret head, types XCSA, XCSB, XCSC,
XCSE and XCSL



Pre-wired mini connectors for XCS safety interlocks

The XCS safety interlock switches are available with mini connectors in several different wiring diagrams. Each wiring option shown below has a notation of which devices are available with that option. Add the following suffixes to the appropriate XCS catalog number. Only a small number of the pre-wired options available are listed here and on the next page. **Many other connectors and wiring diagrams are available. New wiring diagrams to meet your applications are available upon request.**

3-pin: (for all XCSE except XCSE, XCSMP, and XCSDM) suffix AA	
Switch terminals	Wire color
21.....	Black
22.....	White
Ground.....	Green

5-pin: (for all XCSE except XCSE, XCSMP, and XCSDM) suffix CA (1)	
Switch terminals	Wire color
13.....	Orange
14.....	Red
21.....	White
22.....	Black
Ground.....	Green

5-pin: (for XCSE) suffix CC (1)	
Switch terminals	Wire color
13.....	Orange
14.....	Red
E1.....	White
E2.....	Black
Ground.....	Green

5-pin: (for all XCSE except XCSE, XCSMP, and XCSDM) suffix CB (1)	
Switch terminals	Wire color
13.....	White
14.....	Black
21.....	Orange
22.....	Red
Ground.....	Green

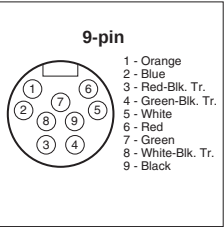
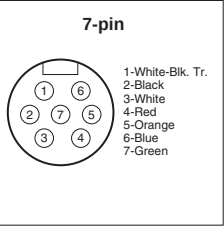
5-pin: (for XCSE) suffix CD (1)	
Switch terminals	Wire color
13.....	White
14.....	Black
E1.....	Orange
E2.....	Red
Ground.....	Green

6-pin: (for all XCS with LED except for XCSE) suffix DA	
Switch terminals	Wire color
13.....	Orange
14.....	Blue
21.....	Red
22.....	White
X1.....	Black
Ground.....	Green

(1) Not for XCSD devices with all N.C. contacts. Device must have at least 1 N.O. contact.
Note: More connector versions are available on the next page

NOTE: View of connectors shown above are the male views as it is installed in the switch.

Limit switches
Safety interlock switches, actuator operated
Pre-wired connector options
Metal, turret head, types XCSA, XCSB, XCSC,
XCSE, and XCSL



Pre-Wired Mini Connectors for XCS Safety Interlocks (continued)

The XCS safety interlock switches are available with mini connectors in several different wiring diagrams. Each wiring option shown below and on the previous page has a notation of which devices are available with that option. Add the following suffixes to the appropriate XCS catalog number. Only a small number of the pre-wired options available are listed here and on the previous page. **Many other connectors and wiring diagrams are available. New wiring diagrams to meet your applications are available upon request.**

7-pin: (for XCSE) suffix EA (1) Switch terminals 13..... 14..... 21..... 22..... Ground..... E1..... E2.....	Wire color Orange Red White Black Green Blue White with black tracer/stripe	7-pin: (for XCSE - locking without power) suffix ED (1) Switch terminals 33..... 34..... 51..... X1..... Ground..... E1..... E2..... Jumper between 52 and 21 (installed by Schneider Electric) Jumper between 22 and X2 (installed by Schneider Electric) Jumper between 34 and X3 (installed by Schneider Electric)	Wire color White Black Orange Red Green Blue White with black tracer/stripe
7-pin: (for XCSE) suffix EB (1) Switch terminals 13..... 14..... 21..... 22..... Ground..... E1..... E2.....	Wire color White Black Orange Red Green Blue White with black tracer/stripe	7-pin: (for XCSE) suffix EE Switch terminals 21..... 22..... 51..... 52..... Ground..... E1..... E2.....	Wire color Orange Red White Black Green Blue White with black tracer/stripe
7-pin: (for XCSE - locking without power) suffix EC (1) Switch terminals 33..... 34..... 51..... X1..... Ground..... E1..... E2..... Jumper between 52 and 21 (installed by Schneider Electric) Jumper between 22 and X2 (installed by Schneider Electric) Jumper between 34 and X3 (installed by Schneider Electric)	Wire color Orange Red White Black Green Blue White with black tracer/stripe	7-pin: (for XCSE) suffix EF Switch terminals 21..... 22..... 51..... 52..... Ground..... E1..... E2.....	Wire color White Black Orange Red Green Blue White with black tracer/stripe
9-pin: (for XCSE) suffix GA (1) Switch terminals 13..... 14..... 21..... 22..... Ground..... 51..... 52..... E1..... E2.....	Wire color Orange Red White Black Green Red with black tracer/stripe Green with black tracer/stripe Blue White with black tracer/stripe	9-pin: (for XCSE) suffix GB (1) Switch terminals 13..... 14..... 21..... 22..... Ground..... 51..... 52..... E1..... E2.....	Wire color White Black Orange Red Green Red with black tracer/stripe Green with black tracer/stripe Blue White with black tracer/stripe
9-pin: (for XCSE) (Locking with power) suffix GC Switch terminals 31..... 32..... 21..... 22..... Ground..... 43..... 44..... E1..... E2.....	Wire color Orange Red White Black Green Red with black tracer/stripe Green with black tracer/stripe Blue White with black tracer/stripe	9-pin: (for XCSE) (Locking without power) suffix GD Switch terminals 31..... 32..... 21..... 22..... Ground..... 51..... 52..... E1..... E2.....	Wire color Orange Red White Black Green Red with black tracer/stripe Green with black tracer/stripe Blue White with black tracer/stripe

(1) Not for XCSE devices with all N.C. contacts. Device must have at least 1 N.O. contact.
Note: More connector versions are available on the the previous page.

Limit switches

Non-contact safety interlock switches

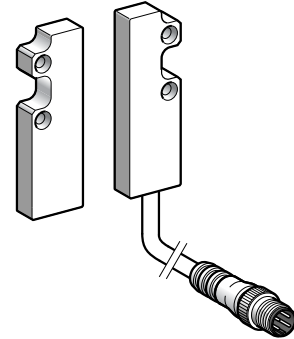
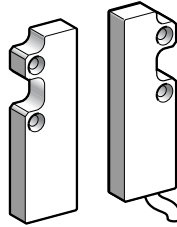
Plastic

XCSDMC

Rectangular, compact: 2.01 x 0.63 x 0.28 in. (51 x 16 x 7 mm)

Pre-cabled connection

Connector on pigtail connection



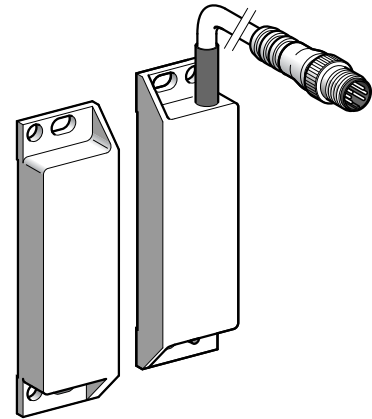
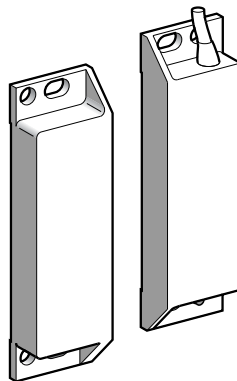
3/56 and 3/57

XCSDMP

Rectangular, standard: 3.46 x 0.98 x 0.51 in. (88 x 25 x 13 mm)

Pre-cabled connection

Connector on pigtail connection



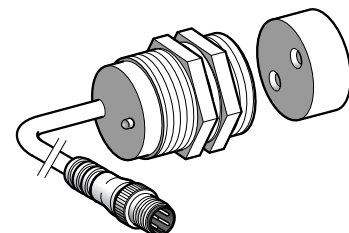
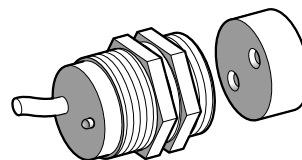
3/56 and 3/57

XCSDMR

Cylindrical, diameter: 1.18 in. (30 mm), length: 1.51 in. (38.5 mm)

Pre-cabled connection

Connector on pigtail connection



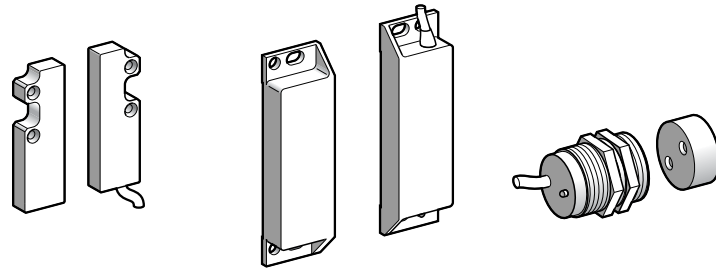
3/56 and 3/57

Environment			
Conformity to standards	Products		EN/IEC 60204-1, EN/ISO 14119
	Machine assemblies		IEC/EN 60204-1, EN/ISO 12100, EN 1088/ISO 14119 (XCSDM●5●● only)
Product certifications			UL-CSA, BG
Maximum safety level <i>Using an appropriate and correctly connected control system.</i>			PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508
Reliability data B _{10d}			50,000,000 (data value for a service life of 10 years can be limited by contact and mechanical wear)
Protective treatment			Standard version: "TH"
Ambient air temperature	For operation	°F (°C)	-13 to +185 (- 25 to + 85)
	For storage	°F (°C)	-40 to +185 (- 40 to + 85)
Vibration resistance			10 gn (10–150 Hz) conforming to IEC 60068-2-6
Shock resistance			30 gn (11 ms) conforming to IEC 60068-2-7
Sensitivity to magnetic fields		mT	≥ 0.3
Electric shock protection			Class II conforming to IEC 60536
Degree of protection		Conforming to IEC 60529	IP 66 and IP 67 for non-contact safety interlock switches with pre-cabled connection IP 67 for non-contact safety interlock switches with connector on pigtail connection
Materials			Thermoplastic case (PBT) PVC cable (ROHS)
Contact block specifications			
Rated operational specifications			U _e : --- 24 V, I _e : 100 mA max.
Rated insulation voltage (U _i)			U _i : --- 100 V
Rated impulse withstand voltage (U _{imp})		kV	2.5 conforming to EN/IEC 60947-5-1
Resistance across terminals	Contact with LED	Ω	57
	Contact without LED	Ω	10
Protection (not using safety module)			External cartridge fuse: 500 mA gG (gl)
Connection	XCSDMC		Pre-cabled, 4 x 22 AWG, length: 2, 5 or 10 m depending on model or M8 connector on 5.95 in. (0.15 m) pigtail
	XCSDMP	2 contact model	Pre-cabled, 4 x 22 AWG, length: 2, 5 or 10 m depending on model or M12 connector on 5.95 in. (0.15 m) pigtail
		3 contact model	Pre-cabled, 6 x 22 AWG, length: 2, 5 or 10 m depending on model or M12 connector on 5.95 in. (0.15 m) pigtail
	XCSDMR		Pre-cabled, 4 x 22 AWG, length: 2, 5 or 10 m depending on model or M12 connector on 5.95 in. (0.15 m) pigtail
Contact material			Rhodium
Electrical life			1.2 million operating cycles
Maximum switching voltage		V	--- 100
Switching capacity	Contact with LED	mA	5–100
	Contact without LED	mA	0.1–100
Insulation resistance		MΩ	1000
Maximum breaking capacity	Contact with LED	VA	3
	Contact without LED	VA	10
Maximum switching frequency		Hz	150

Limit switches

Non-contact safety interlock switches
Plastic, pre-cabled

Type	Rectangular		Cylindrical
	Compact 2.01 x 0.63 x 0.28 in (51 x 16 x 7 mm)	Standard 3.46 x 0.98 x 0.51 in (88 x 25 x 13 mm)	Diameter: 1.18 in. (30 mm) Length: 1.51 in. (38.5 mm)



Catalog numbers of switches (1) must be used in conjunction with XPS safety relay modules, see pages 6/310 to 6/313

Contact states shown are with the magnet positioned in front of the switch

2-pole N.O. + N.C. (N.C. staggered)		XCSDMC5902	XCSDMP5902	XCSDMR5902
2-pole N.C. + N.C. (2) (1 N.O. staggered)		XCSDMC7902	XCSDMP7902	XCSDMR7902
3-pole N.C. + N.C. + N.O. (1 N.C. staggered)		—	XCSDMP5002	—
3-pole N.O. + N.C. + N.C. (2) (1 N.O. staggered)		—	XCSDMP7002	—
2-pole N.O. + N.C. (3) (N.C. staggered) With LED		XCSDMC5912	XCSDMP5912	XCSDMR5912
2-pole N.C. + N.C. (2) (3) (1 N.O. staggered) With LED		XCSDMC7912	XCSDMP7912	XCSDMR7912
3-pole N.O. + N.O. + N.C. (3) (1 N.C. staggered) With LED		—	XCSDMP5012	—
3-pole N.O. + N.C. + N.C. (2) (3) (1 N.O. staggered) With LED		—	XCSDMP7012	—
Weight lb (kg)	0.22 (0.101)	0.40 (0.180)	0.32 (0.146)	

(1) Magnetic switch + coded magnet (XC SZC●●●●).

Switch pre-cabled with 6.6 ft. (2m) long cable. For other cable lengths, replace the last number of the catalog number (2) by 5 for a 16.4 ft. (5 m) long cable or by 10 for a 32.8 ft. (10 m) long cable.

Example: XCSDMC5902 rectangular, compact switch with N.C. + N.O. contacts and 10 m cable becomes XCSDMC59010.

(2) Only to be wired in conjunction with an XPSAF module (see pages 6/310 and 6/313).

(3) The green LED is lit when the coded magnet is positioned in front of the switch (guard closed).

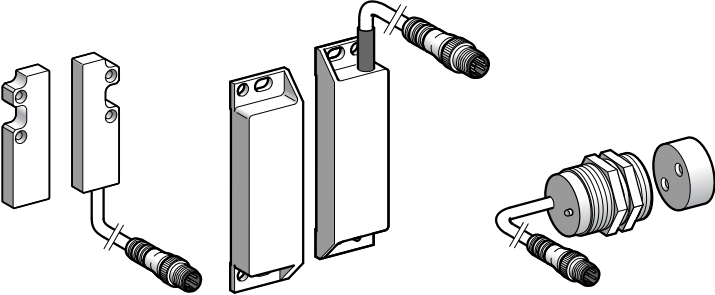
N.O. contact PK-GY is to be used as an indicator of the device state, typically to a PLC. It is not to be used for the safety function.

Additional specifications not shown under General Specifications (page 6/303)

Operating zone	Sao: 0.20 in. (5 mm) Sar: 0.59 in. (15 mm)	Sao: 0.31 in. (8 mm) Sar: 0.79 in. (20 mm)	Sao: 0.31 in. (8 mm) Sar: 0.79 in. (20 mm)
Approach directions	3 directions	3 directions	1 direction

Accessories (page 6/306)

Limit switches
Non-contact safety interlock switches
Plastic, connector on 5.9 in. (151 mm) pigtail

Type	Rectangular		Cylindrical
	Compact 2.01 x 0.63 x 0.28 in (51 x 16 x 7 mm)	Standard 3.46 x 0.98 x 0.51 in (88 x 25 x 13 mm)	Diameter: 1.18 in. (30 mm) Length: 1.51 in. (38.5 mm)
	M8 connector	M12 connector	M12 connector
			

Catalog numbers of switches (1) must be used in conjunction with XPS safety relay modules, see pages 6/310 to 6/313
Contact states shown are with the magnet positioned in front of the switch

2-pole N.O. + N.C. (N.C. staggered)		XCSDMC590L01M8	XCSDMP590L01M12	XCSDMR590L01M12
2-pole N.C. + N.C. (2) (1 N.O. staggered)		XCSDMC790L01M8	XCSDMP790L01M12	XCSDMR790L01M12
3-pole N.O. + N.O. + N.C. (1 N.C. staggered)		—	XCSDMP500L01M12	—
3-pole N.O. + N.C. + N.C. (2) (1 N.O. staggered)		—	XCSDMP700L01M12	—
2-pole N.O. + N.C. (3) (N.C. staggered) With LED		XCSDMC591L01M8	XCSDMP591L01M12	XCSDMR591L01M12
2-pole N.C. + N.C. (2) (3) (1 N.O. staggered) With LED		XCSDMC791L01M8	XCSDMP791L01M12	XCSDMR791L01M12
3-pole N.O. + N.O. + N.C. (3) (1 N.C. staggered) With LED		—	XCSDMP501L01M12	—
3-pole N.O. + N.C. + N.C. (2) (3) (1 N.O. staggered) With LED		—	XCSDMP701L01M12	—
Weight lb (kg)		0.22 (0.101)	0.40 (0.180)	0.32 (0.146)

(1) Magnetic switch + coded magnet (XC SZC●●●●).
(2) Only to be wired in conjunction with an XPSAF module (see pages 6/310 and 6/313).
(3) The green LED is lit when the coded magnet is positioned in front of the switch (guard closed).
N.O. contact PK-GY is to be used as an indicator of the device state, typically to a PLC. It is not to be used for the safety function.

Additional specifications not shown under General Specifications (page 6/303)			
Operating zone	Sao: 0.20 in. (5 mm) Sar: 0.59 in. (15 mm)	Sao: 0.31 in. (8 mm) Sar: 0.79 in. (20 mm)	Sao: 0.31 in. (8 mm) Sar: 0.79 in. (20 mm)
Approach directions	3 directions	3 directions	1 direction

Accessories (page 6/306)

Accessories			
Accessories for non-contact safety interlock switches	XCSDMC●●●2 XCSDMC●●●L	XCSDMP●●●2 XCSDMP●●●L	XCSDMR●●●2 XCSDMR●●●L
Mounting clamp	—		XSZ B130
Weight lb (kg)	—		0.18 (0.080)
Additional coded magnet	XCSZC1	XCSZP1	XCSZR1
Weight lb (kg)	0.02 (0.009)	0.11 (0.050)	0.04 (0.018)
Non-magnetic shims	XCSZCC (lot of 2)	XCSZCP (lot of 2)	XCSZCR
Weight lb (kg)	0.02 (0.008)	0.03 (0.012)	0.004 (0.002)

Pre-wired female connectors for connector version switches

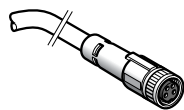
Pre-wired connector specifications

Pre-wired connector type	XZCP0941L●, XZCP1041L●	XZCP29P11L●	XZCP1141L●, XZCP1241L●
Type of connection	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)
Number of conductors/pins	4	8	4
Degree of protection	IP 67 (with clamping ring correctly tightened)		
Ambient air temperature	Static	- 31 to + 194 °F (- 35 to + 90 °C)	- 31 to + 194 °F (- 35 to + 90 °C)
	Dynamic	+ 23 to + 194 °F (- 5 to + 90 °C)	+ 23 to + 194 °F (- 5 to + 90 °C)
Cabling	Ø 0.205" (5.2 mm) cable, wire c.s.a.: 4 x 22 AWG (0.34 mm²)	Ø 0.205" (5.2 mm) cable, wire c.s.a.: 8 x 24 AWG (0.25 mm²)	Ø 0.205" (5.2 mm) cable, wire c.s.a.: 4 x 22 AWG (0.34 mm²)
LED signalling	—	—	—
Nominal voltage	~ 60 V, --- 75 V	~ 250 V, --- 300 V	~ 250 V, --- 300 V
Nominal current	4 A	2 A	4 A
Insulation resistance	> 10 ⁹ Ω	> 10 ⁹ Ω	> 10 ⁹ Ω
Contact resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ

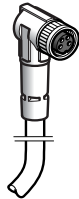
Catalog numbers of pre-wired connectors

Type of connector	Number of pins	For use with	Type	Cable length ft. (m)	Catalog number	Weight lb (kg)
Female, M8	4	XCSDMC●●●L	Straight	6.56 (2)	XZCP0941L2	0.18 (0.080)
				16.40 (5)	XZCP0941L5	0.40 (0.180)
				32.81 (10)	XZCP0941L10	0.79 (0.360)
			Elbowed	6.56 (2)	XZCP1041L2	0.18 (0.080)
				16.40 (5)	XZCP1041L5	0.40 (0.180)
				32.81 (10)	XZCP1041L10	0.79 (0.360)
	8	XCSDMP●●●L	Straight	6.56 (2)	XZCP29P11L2	0.22 (0.100)
				16.40 (5)	XZCP29P11L5	0.64 (0.290)
				32.81 (10)	XZCP29P11L10	1.04 (0.470)
Female, M12	4	XCSDMR●●●L/ XCSDMP●●●L	Straight	6.56 (2)	XZCP1141L2	0.20 (0.090)
				16.40 (5)	XZCP1141L5	0.42 (0.190)
				32.81 (10)	XZCP1141L10	0.82 (0.370)
			Elbowed	6.56 (2)	XZCP1241L2	0.20 (0.090)
				16.40 (5)	XZCP1241L5	0.42 (0.190)
				32.81 (10)	XZCP1241L10	0.82 (0.370)
	8	XCSDMR●●●L/ XCSDMP●●●L	Straight	6.56 (2)	XZCP1141L2	0.20 (0.090)
				16.40 (5)	XZCP1141L5	0.42 (0.190)
				32.81 (10)	XZCP1141L10	0.82 (0.370)

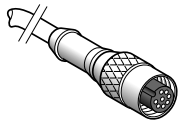
6



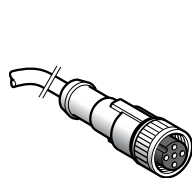
XZCP0941L●



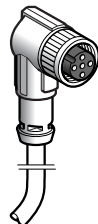
XZCP1041L●



XZCP29P11L●

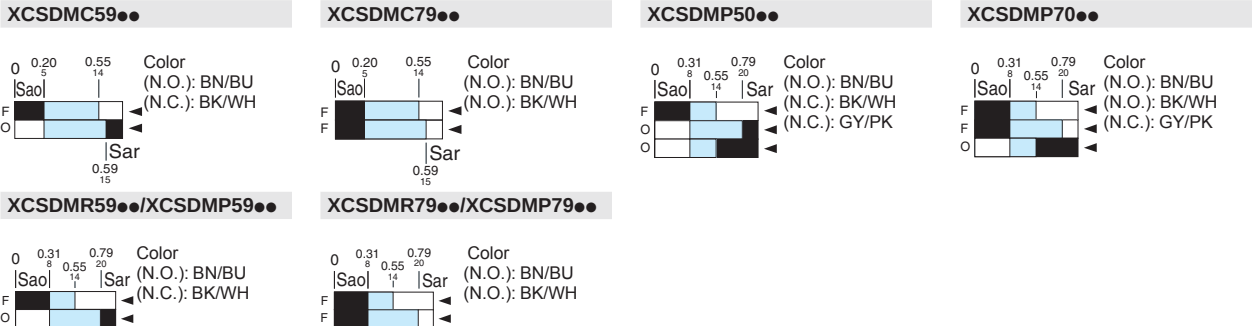


XZCP1141L●

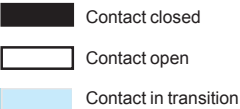
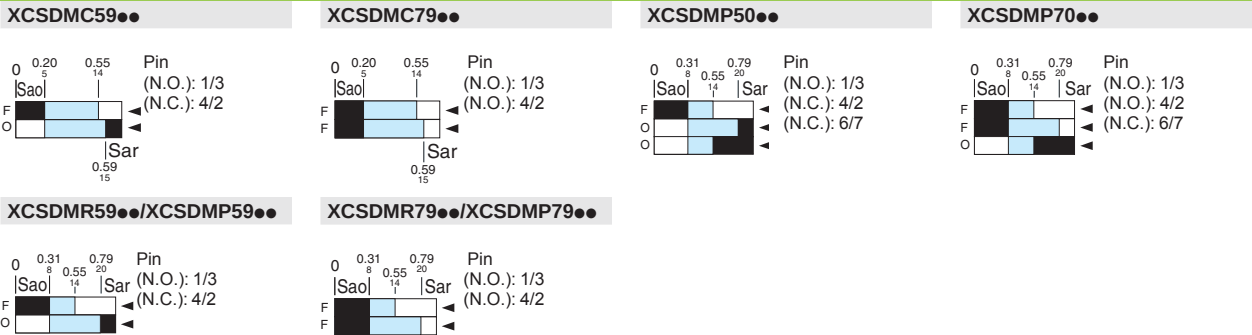


XZCP1241L●

Function diagrams with magnet present (pre-cabled version)



Function diagrams with magnet present (connector on pigtail version)

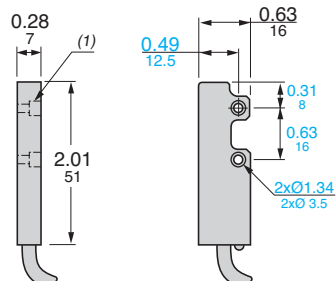


Sao: specified operating distance.
Sar: specified tripping distance.
Conforming to EN/IEC 60947-5-3.

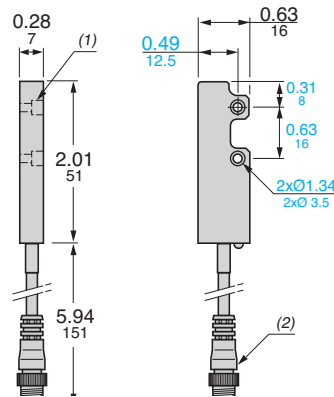
Non-contact safety interlock switches

XCSDMC

Pre-cabled connection

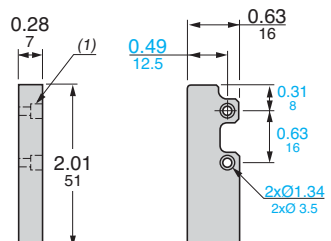


Connector on pigtail connection



Coded magnet for XCSDMC

XCSZC1



Dual Dimensions: INCHES
Millimeters

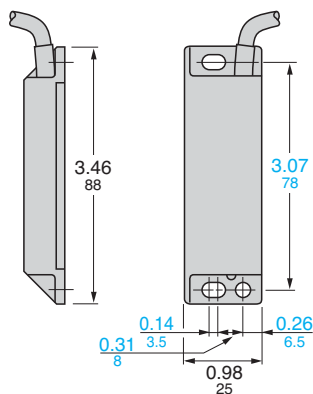
(1) Counterbored: 0.24 x 0.14 in. (Ø 6 x 3.5 mm.)

(1) Counterbored: 0.24 x 0.14 in. (Ø 6 x 3.5 mm.)
(2) M8 4-pin connector.

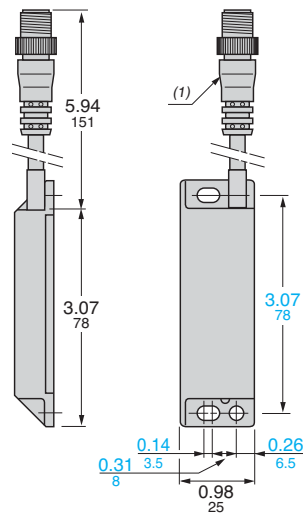
(1) Counterbored: 0.24 x 0.14 in.
(Ø 6 x 3.5 mm.)

XCSDMP

Pre-cabled connection



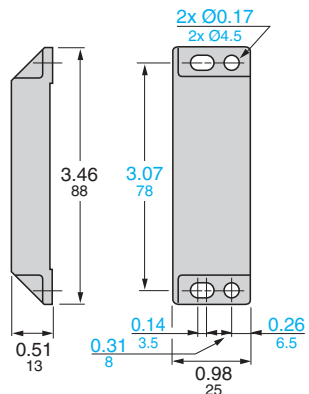
Connector on pigtail connection



(1) 4 or 6-pin M12 connector.

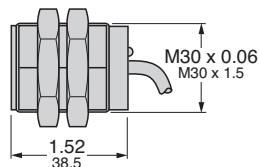
Coded magnet for XCSDMP

XCSZP1

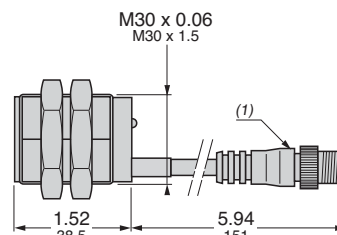


XCSDMR

Pre-cabled connection



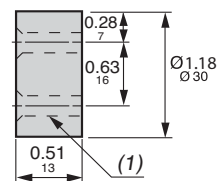
Connector on pigtail connection



(1) M12 4-pin connector.

Coded magnet for XCSDMR

XCSZR1

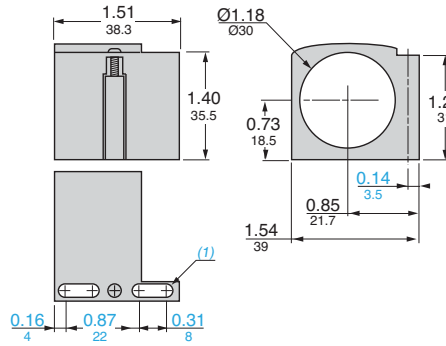


(1) 2 x Ø 0.17 (2 x Ø 4.3), countersunk: Ø 7.5 at 45°.

Accessories

Mounting clamp

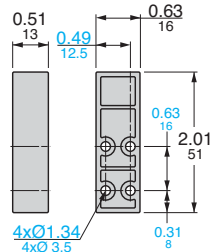
XSZB130



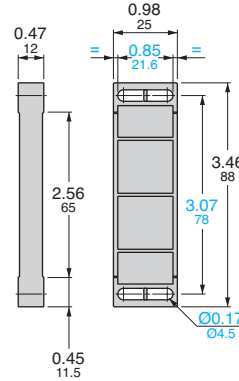
(1) 2 elongated holes Ø0.16 x 0.31 in. (4 x 8 mm).

Non-magnetic shims

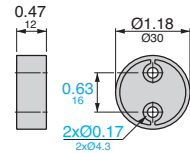
XCSZCC



XCSZCP

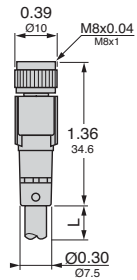


XCSZCR

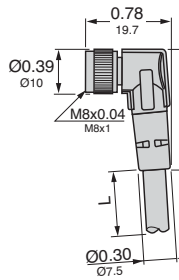


Pre-wired female connectors

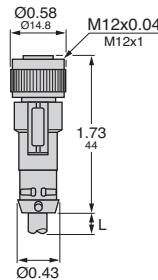
XZCP0941L●



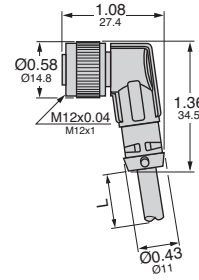
XZCP1041L●



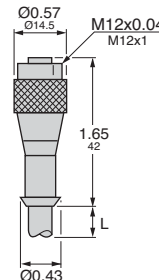
XZCP1141L●



XZCP1241L●



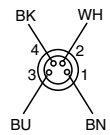
XZCP29P11L●



Wiring diagrams

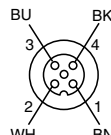
M8 pre-wired female connector

XZCP0941L●

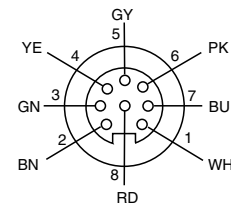


M12 pre-wired female connector

XZCP1141L●, XZCP1241L●

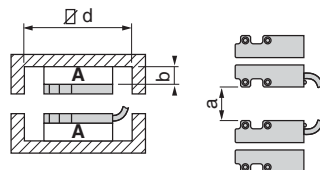


XZCP29P11L●

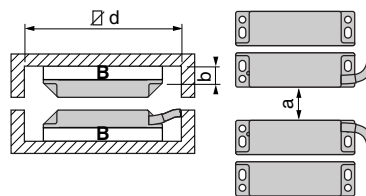


Mounting

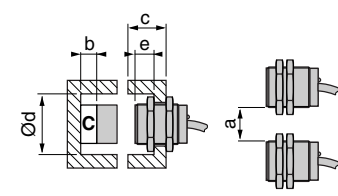
XCSDMC



XCSDMP



XCSDMR



	XCS	a	b	c	d	e
DMC	1.57 (40)	0.51 (13) min.	—	3.19 x 2.17 (81 x 55)	—	—
DMP	3.94 (100)	0.39 (10) min.	—	4.65 x 2.17 (118 x 55)	—	—
DMR	1.57 (40)	0.47 (12) min.	> 0.39 (10)	Ø 1.77 (45)	0.79 (20)	—
		—	> 0.39 (10)	Ø 1.77 (45)	0.51 (13)	—
		0.47 (12) min.	< 0.39 (10)	—	0.79 (20)	—
		—	< 0.39 (10)	—	0.67 (17)	—

Non-magnetic shims

A XCSZCC

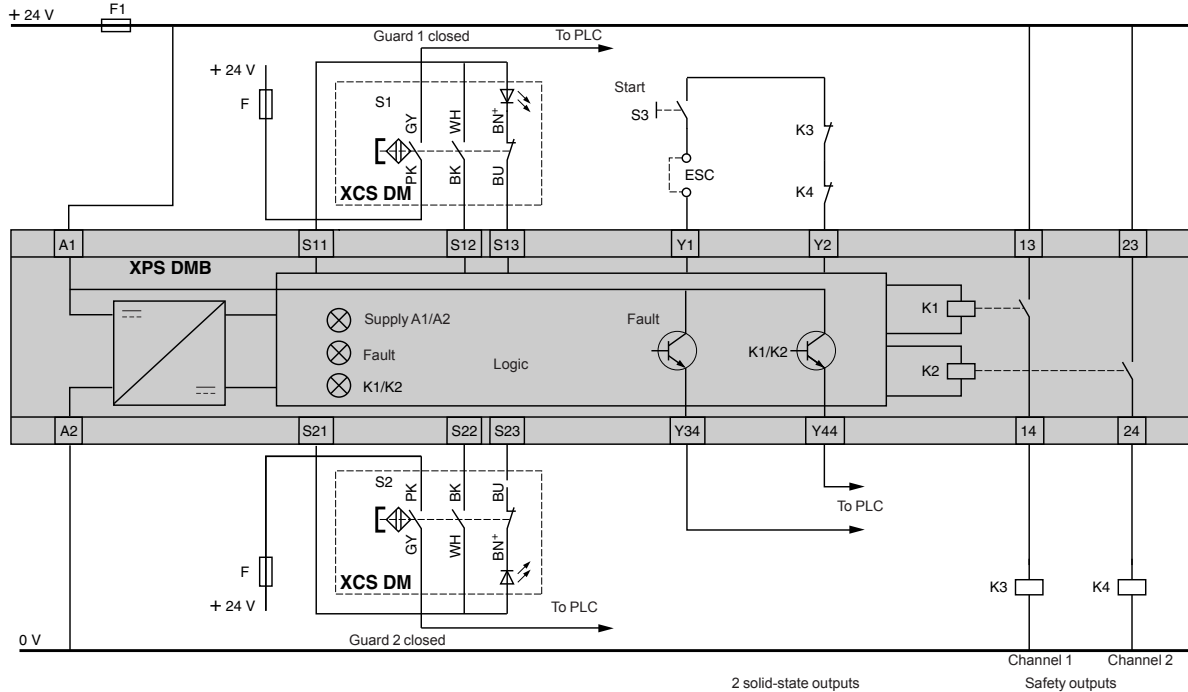
B XCSZCP

C XCSZCR

Dual Dimensions: INCHES
Millimeters

XCSDMP5... with XPSDMB

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Example with 3-pole N.O. + N.O. + N.C. (1 N.O. staggered) contact.

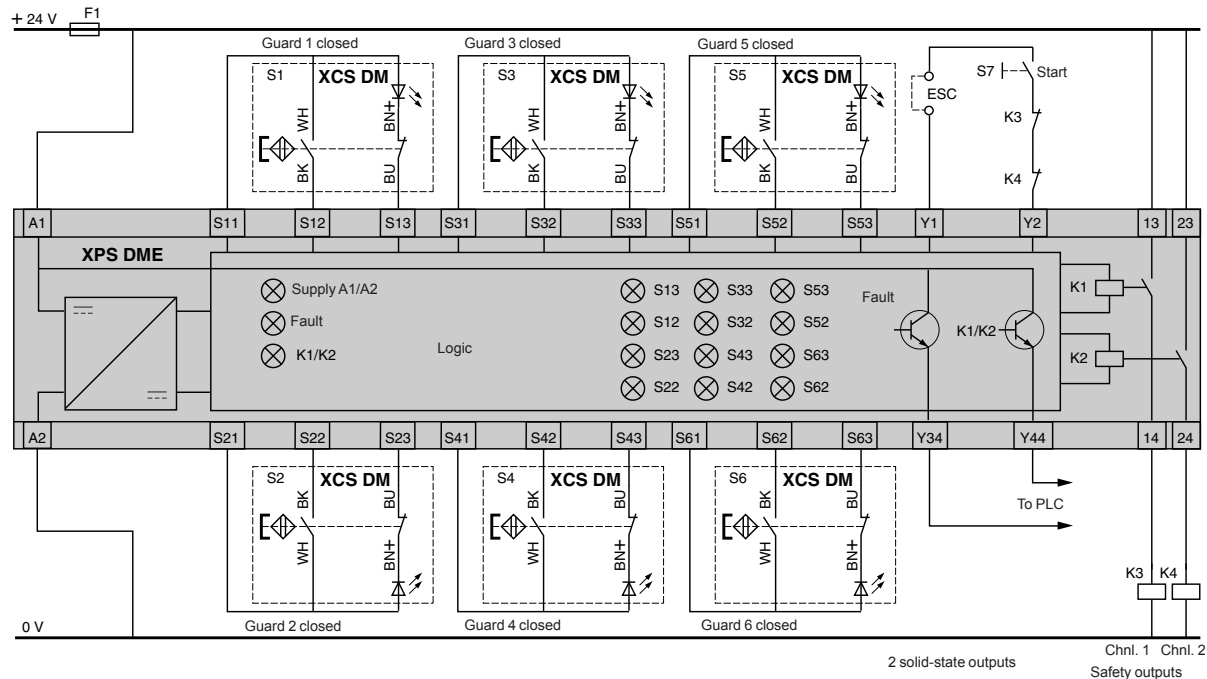


ESC: External start conditions.

- Inputs: S11, S12, S13 or S21, S22, S23
- Unused inputs must be jumpered from S_1 to S_3. For example: S21 to S23.
- The order in which the inputs are wired or jumpered will not affect device operation.

XCSDMC5... , XCSDMP5... , XCSDMR5... with XPSDME

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Example with 2-pole N.O. + N.C. (N.O. staggered) contact.



ESC: External start conditions.

- Inputs: S_1, S_2, S_3
- Unused inputs must be jumpered from S_1 to S_3. For example if input S61, S62, S63 is not used, then terminals S61 and S63 must be jumpered.
- The order in which the inputs are wired or jumpered will not affect device operation.

Limit switches

Non-contact safety interlock switches

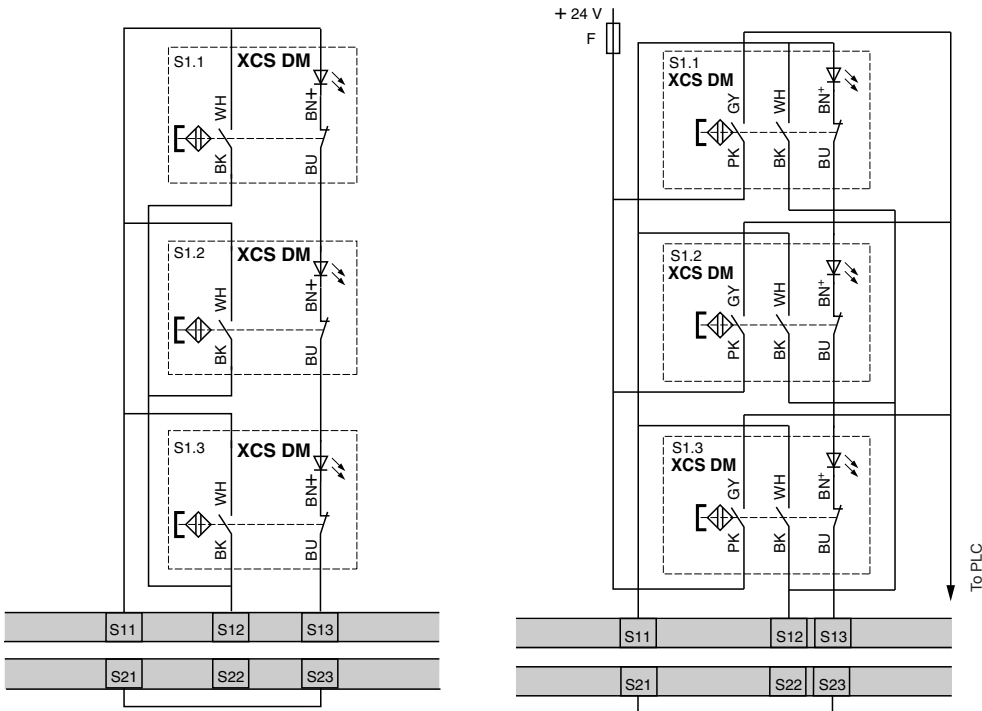
Plastic, pre-cabled

Connection of up to 3 non-contact safety interlock switches, with an LED on one input, with XPSDM● (1)

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1 and SIL 2 conforming to EN/IEC 61508

Example with 2-pole N.O. + N.C. contact

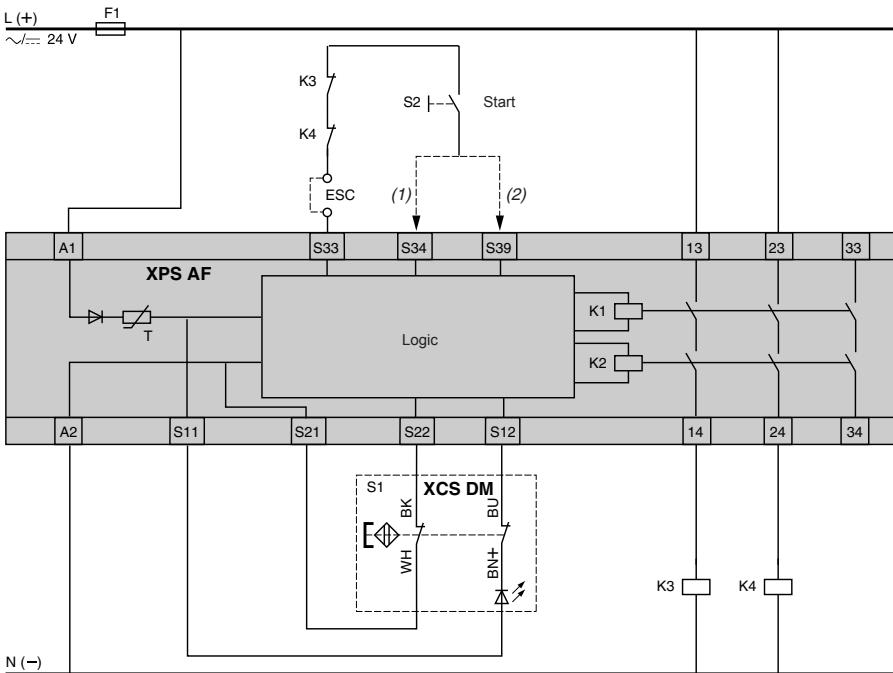
Example with 3-pole N.O. + N.O. + N.C. contact



(1) Input: S11, S12, S13 or S21, S22, S23.

XCSDM●7●●● with XPSAF

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Example with 2-pole N.C. + N.C. contact



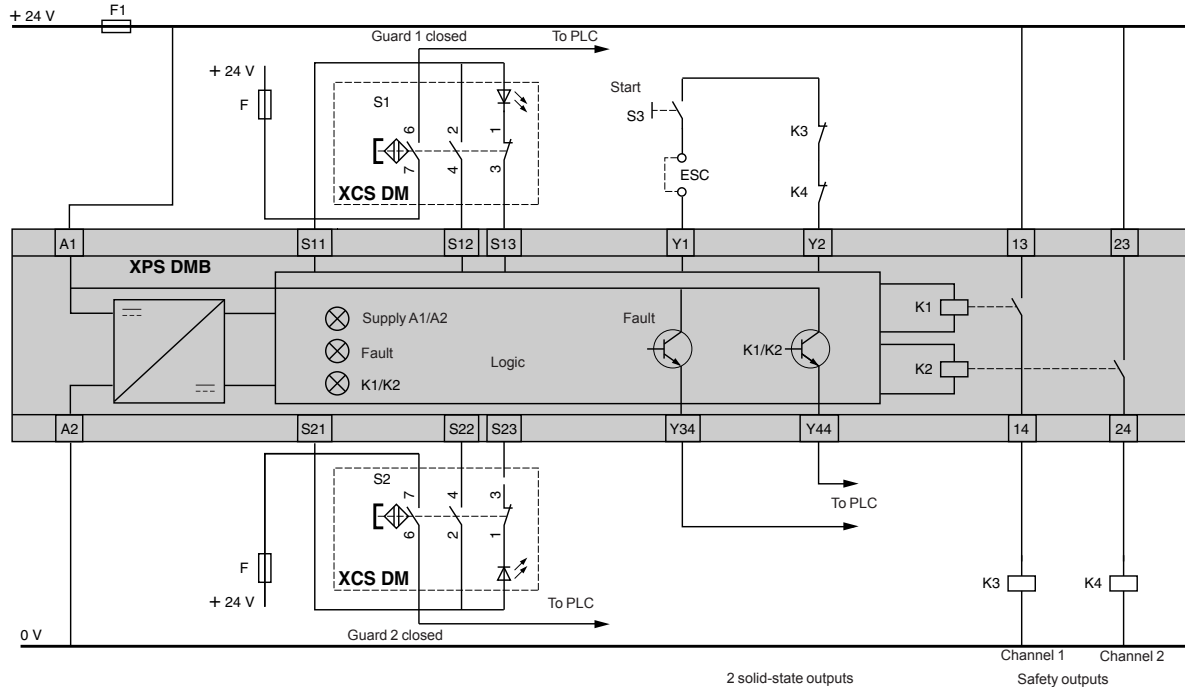
(1) With start button monitoring.

(2) Without start button monitoring.

ESC: External start conditions.

XCSDMP5... with XPSDMB

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Example with 3-pole N.O. + N.O. + N.C. (1 N.O. staggered) contact.

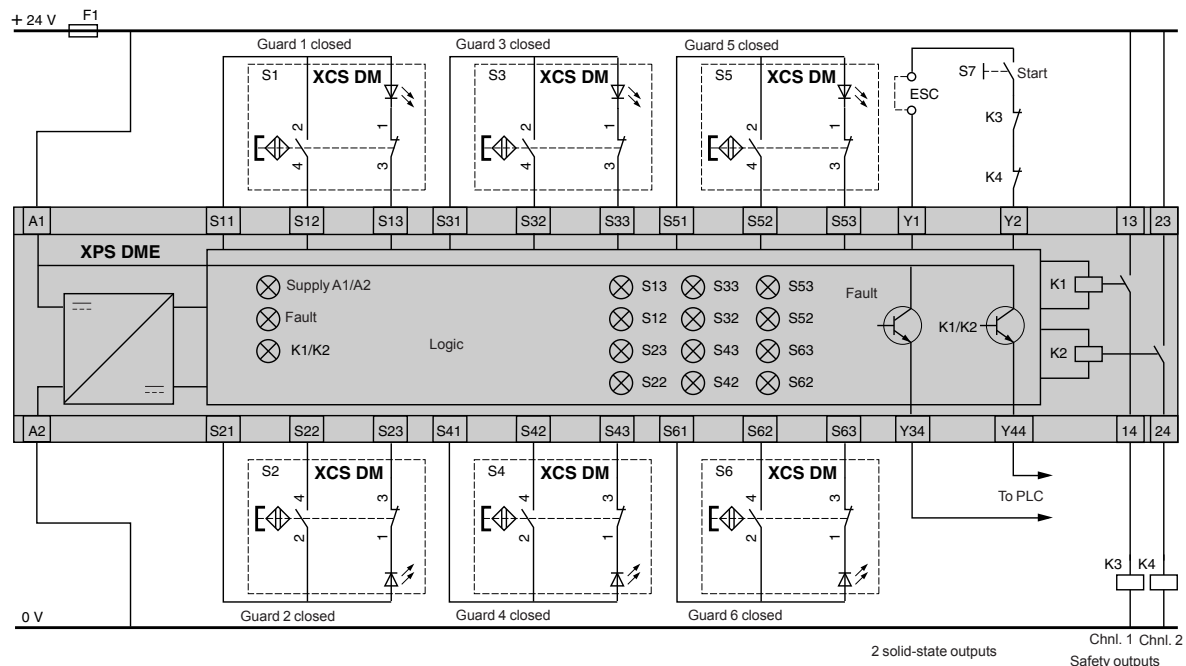


ESC: External start conditions.

- Inputs: S11, S12, S13 or S21, S22, S23
- Unused inputs must be jumpered from S_1 to S_3. For example: S21 to S23.
- The order in which the inputs are wired or jumpered will not affect device operation.

XCSDMC5..., XCSDMP5..., XCSDMR5... with XPSDME

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Example with 2-pole N.O. + N.C. (N.O. staggered) contact.



ESC: External start conditions.

- Inputs: S_1, S_2, S_3
- Unused inputs must be jumpered from S_1 to S_3. For example if input S61, S62, S63 is not used, then terminals S61 and S63 must be jumpered.
- The order in which the inputs are wired or jumpered will not affect device operation.

Limit switches

Non-contact safety interlock switches

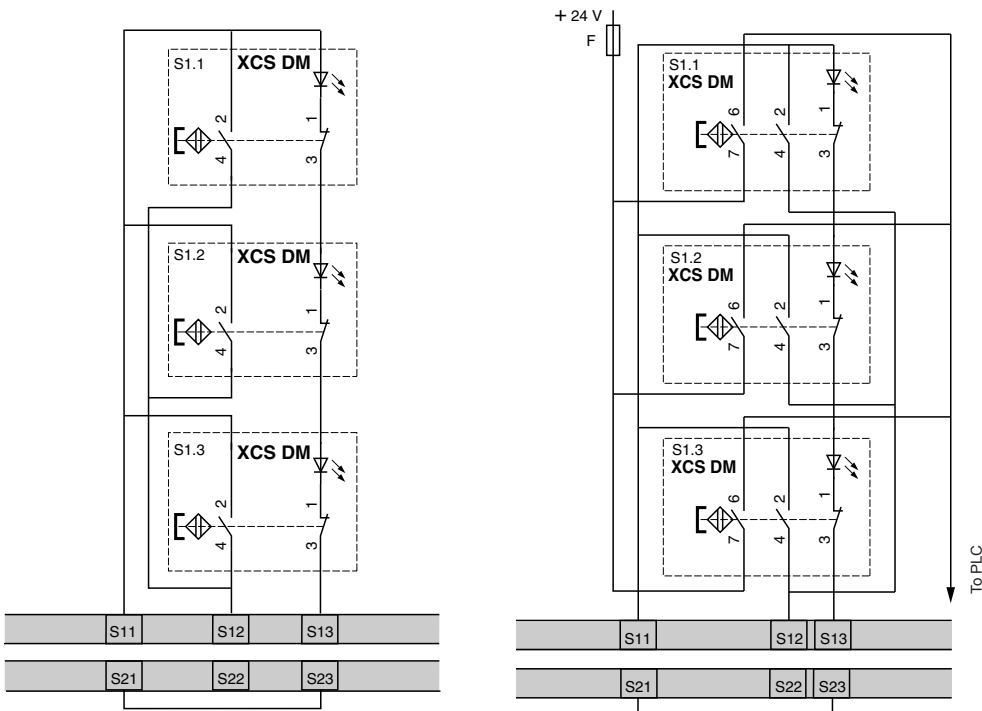
Plastic, connector on pigtail

Connection of up to 3 non-contact safety interlock switches, with an LED on one input, with XPSDM● (1)

Wiring to PL=d, category 3 conforming to EN/ISO 13849-1 and SIL 2 conforming to EN/IEC 61508

Example with 2-pole N.O. + N.C. contact

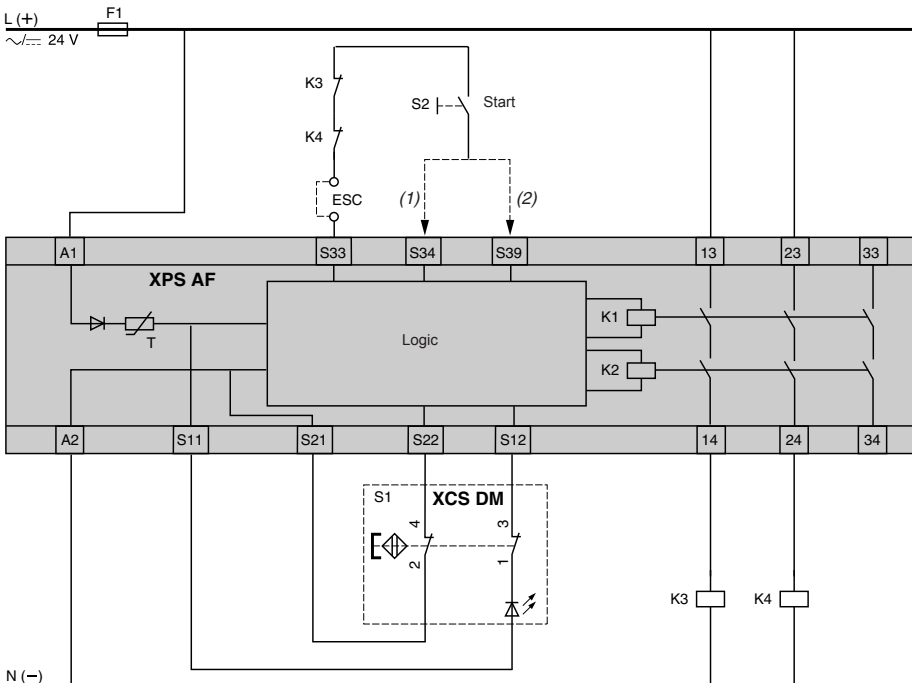
Example with 3-pole N.O. + N.O. + N.C. contact



(1) Input: S11, S12, S13 or S21, S22, S23.

XCSDM●7●●● with XPSAF

Wiring to PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508. Example with 2-pole N.C. + N.C. contact



(1) With start button monitoring.

(2) Without start button monitoring.

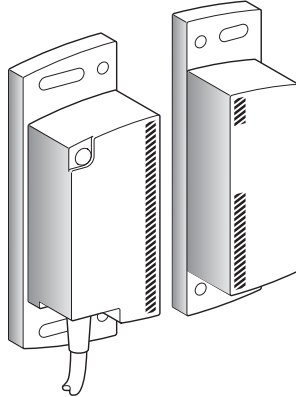
ESC: External start conditions.

Limit switches

Non-contact safety interlock switches

Non-Contact safety interlock switches Pre-cabled connection

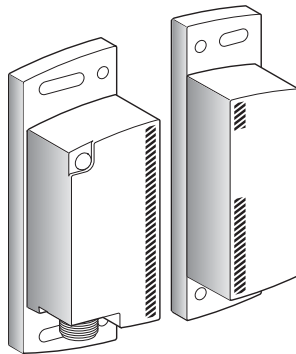
SIL 2/PL=d, category 3 and SIL 3/PL=e, category 4
XCSDM3791●● /XCSDM4801●●



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Non-Contact safety interlock switches M12 connector connection

SIL 2/PL=d, category 3 and SIL 3/PL=e, category 4
XCSDM3791M12/ XCSDM4801M12



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Limit switches

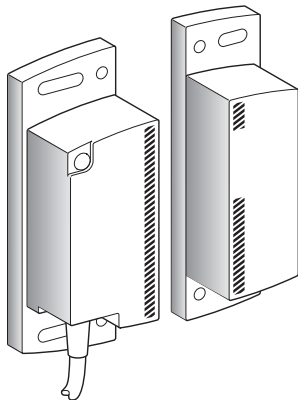
Non-contact safety interlock switches

Non-Contact safety interlock type		SIL 2/PL= d, category 3 XCSDM3		SIL 3/PL=e, category 4 XCSDM4	
Environment					
Conformity to standards			EN/IEC 60947-5-1; EN/IEC 60947-5-2; EN/IEC 60947-5-3, EN/ISO 14119		
Product certifications			CE, UL, CSA, TÜV		
Maximum safety level <i>Using an appropriate and correctly connected control system.</i>			SIL 2 or SIL 3 conforming to EN/IEC 61508, PL=d, category 3 or PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508		
Reliability data B _{10d}			MTTFd = 182 years PFH = 3.94E-9/PFD = 1.15E-5 SFF = 92.5%/HFT = 1		
Ambient air temperature	For operation	°F (°C)	-13 to +158 (-25 to +70)		
	For storage	°F (°C)	+ 40 to + 185 (-40 to +85)		
Vibration resistance	Conforming to IEC 60068-2-6		10 gn (10–500 Hz)		
Shock resistance	Conforming to IEC 60068-2-7		30 gn, 11 ms		
Sensitivity to magnetic fields		mT	≤ 0,5		
Electric shock protection	Conforming to IEC 61140		Class III		
Degree of protection	Conforming to IEC 60529		Pre-cabled version: IP 66, IP 67 Connector version: IP 67		
	Conforming to DIN 40050		Pre-cabled version: IP 69K		
Materials			Thermoplastic case (PBT); PVC cable		
Specifications					
Rated operational specifications			Ub : ∓ 24 V + 10% - 20%		
Rated insulation voltage (Ui)			Ui : ∓ 36V		
Rated impulse withstand voltage (U imp)	Conforming to EN 60947-5-1	kV	2,5		
Integrated output protection			Overload and short-circuit protection		
Connection	Conforming to IEC 60947-5-2-A3 and IEC 61076		Pre-cabled, 6 x 22 AWG (0.25 mm²), length: 6.6, 16.4 or 32.8 ft. (2, 5, or 10 m) depending on model or M12 connector (A coding)	Pre-cabled, 8 x 22 AWG (0.25 mm²), length: 6.6, 16.4 or 32.8 ft. (2, 5, or 10 m) depending on model or M12 connector (A coding)	
Cable diameter		in. (mm)	0.24 (6.1 +/- 0.3)		
Cable resistance		mΩ/m	90		
Safety outputs (OSSD) (Output Signal Switching Devices)			2 PNP type (N.O.) solid-state outputs, 1.5 A (2 A up to 140 °F (60°C)), ∓ 24 V (short-circuit protected)		
Alarm output			–	1 solid-state output, 0.5 A, ∓ 24 V, PNP	
Signaling			LED (green/red/orange)		
Maximum switching frequency		Hz	3		
Activation delay		ms	100		
Discordance time		s	2		
HFT (Hardware Fault Tolerance)			1		
			Test interval: 12 months		
Tightening torque		lb-ft (Nm)	1.327 (1.8) maximum		
Maximum series mounting			32 maximum with 6.6 ft. (2 m) long cable	–	
Functions					
Functions			- LED status signalling	- Auto/Manual start via “Start” input - Monitoring of external switching devices (EDM: External Devices Monitoring) - Display of operating modes (LED) - Monitoring of the function (open or closed) as well as the response time of the power components.	

Limit switches

Non-contact safety interlock switches
Plastic, solid-state PNP type output

Type	Non-Contact safety interlock switches with dedicated transmitter
	Pre-cabled connection



Catalog numbers				
Description	Type of connection	SIL 2/PL=d, category 3	SIL 3/PL=e, category 4	Weight lb (kg)
Magnetic system with dedicated transmitter (1)	Pre-cabled, L = 6.6 ft (2 m)	XCSDM379102	XCSDM480102	0.71 (0.320)
	Pre-cabled, L = 16.4 ft. (5 m)	XCSDM379105	XCSDM480105	1.06 (0.480)
	Pre-cabled, L = 32.8 ft. (10 m)	XCSDM379110	XCSDM480110	1.64 (0.745)

(1) Self-contained system does not require the use of safety module or non-magnetic shim.

Detection specifications	
Assured operating distance	Sao : 0.39 in. (10 mm)
Assured tripping distance	Sar : 0.79 in. (20 mm)
Approach directions	9
Approach speed	0.03 ft./s (0.01 m/s) mini

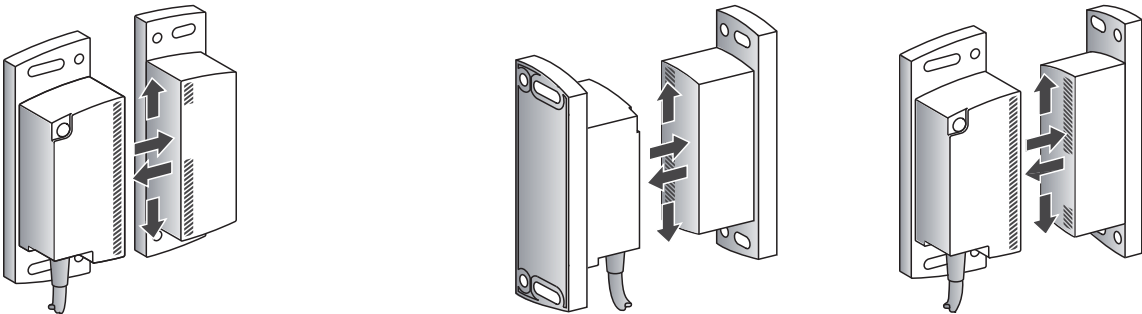
Output status (pre-cabled connection)

Output states shown are with the dedicated transmitter positioned in front of the receiver.

XCSDM3791●●	XCSDM4801●●
I1/O1 - GY/BK (NO) I2/O2 - PK/WH (NO) Sao Sar	I1/O1 - GY/BK (NO) I2/O2 - PK/WH (NO) Sao Sar Er - VT(NC) ON OFF "OFF" = Error

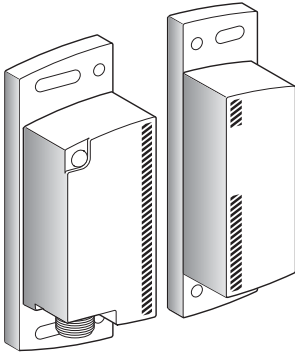
Output closed	Sao : Specified operating distance.
Output open	Sar : Specified tripping distance.
Transitional state	Conforming to EN/IEC 60947-5-3

Approach directions



Limit switches
Non-contact safety interlock switches
Plastic, solid-state PNP type output

Type	Non-contact safety interlock with dedicated transmitter
	M12 connector connection



Catalog numbers				
Description	Type of connection	SIL 2/PL=d, category 3	SIL 3/PL=e, category 4	Weight lb (kg)
Non-Contact safety interlock switches with dedicated transmitter (1)	M12 connector	XCSDM3791M12	XCSDM4801M12	0.47 (0.215)

1) Self-contained system does not require the use of safety module or non-magnetic shim.

Detection specifications	
Assured operating distance	Sao : 0.39 in. (10 mm)
Assured tripping distance	Sar : 0.79 in. (20 mm)
Approach directions	9
Approach speed	0.03 ft./s (0.01 m/s) mini

Output status (pre-cabled connection)
Output states shown are with the dedicated transmitter positioned in front of the receiver.

XCSDM3791M12	XCSDM4801M12
Output closed Output open Transitional state	Sao : Specified operating distance. Sar : Specified tripping distance. Conforming to EN/IEC 60947-5-3

Accessories			
Description	For use with	Catalog number	Weight lb (kg)
Replacement dedicated transmitter	XCSDM3/4●●●02/05/10 XCSDM3/4●●●M12	XCSDMT	0.22 (0.100)
Arc suppressor (pair)	XCSDM3/4●●●02/05/10 XCSDM3/4●●●M12	XUSLZ500	0.04 (0.020)

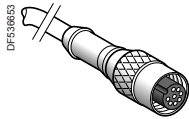
Pre-wired female connectors for connector version Non-contact safety interlock switches

Pre-wired connector specifications

Pre-wired connector type		XZ CP29P12L●	
Type of connection		Screw threaded (metal clamping ring)	
Number of contacts		8	
Degree of protection		IP 67 (with clamping ring correctly tightened)	
Ambient air temperature	Operation	°F (°C)	- 13 to + 158 (- 25 to + 70)
	Storage	°F (°C)	- 40 to + 185 (- 40 to + 85)
Cabling	Conforming to EN/IEC 60947-5-2	Ø 6.1 mm PUR cable, wire c.s.a.: 8 x 22 AWG (0.25 mm²)	
LED signalling		—	
Nominal current	A	2	
Insulation resistance	Ω	> 10 ⁹	
Contact resistance	mΩ	≤ 5	

Catalog numbers of pre-wired connectors

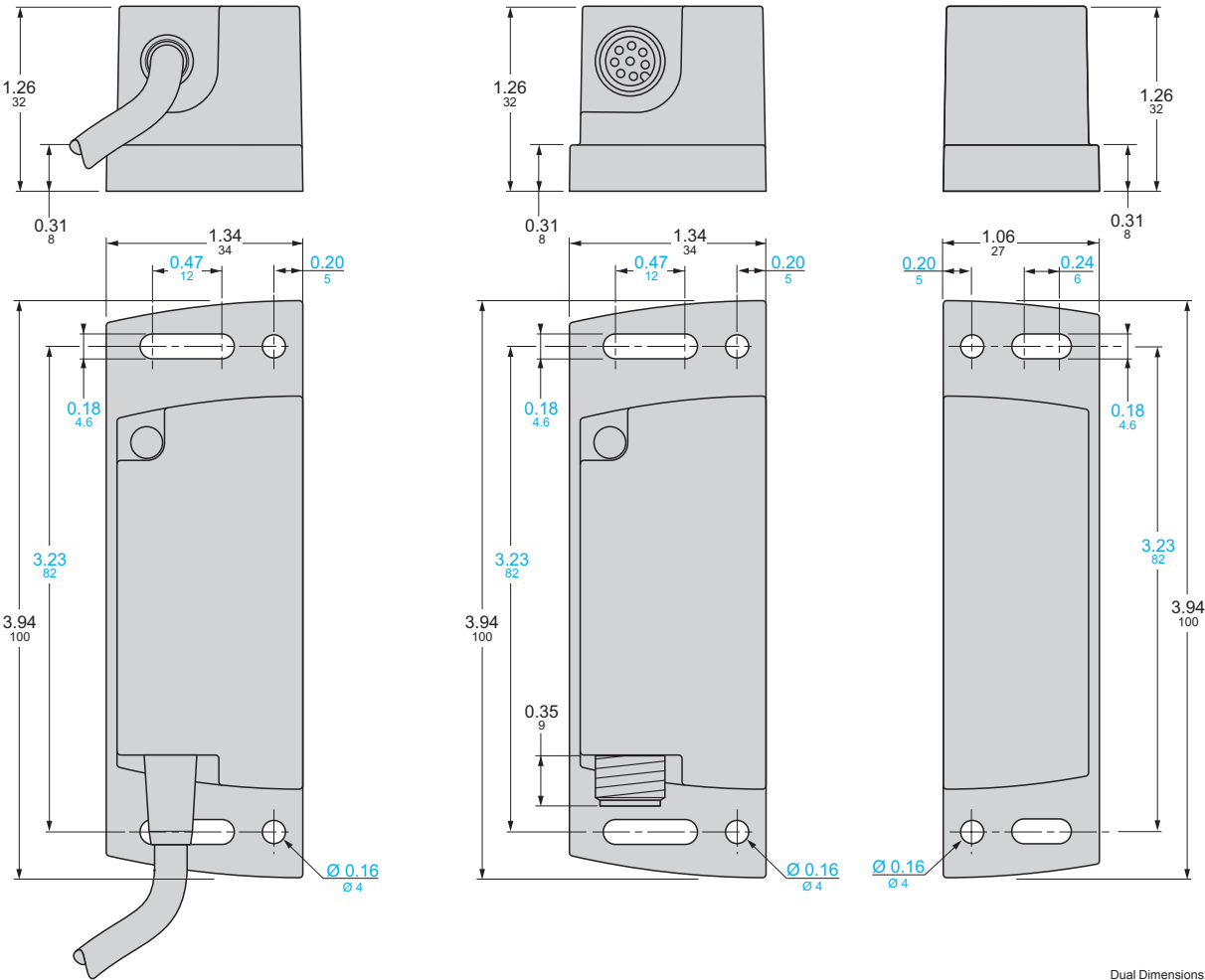
Type of connector	No. of contacts	For use with	Type	Cable length ft. (m)	Catalog number	Weight lb (kg)
Female, M12 (Coding A)	8	XCSDM3/4●●●02	Straight	6.6 (2)	XZCP29P12L2	0.22 (0.100)
		XCSDM3/4●●●05		16.4 (5)	XZCP29P12L5	0.64 (0.290)
		XCSDM3/4●●●10		32.8 (10)	XZCP29P12L10	1.04 (0.470)



XZCP29P12L●

Limit switches
Non-contact safety interlock switches
Plastic

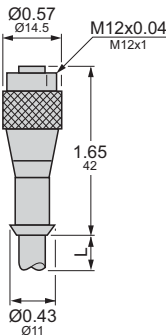
Non-contact safety interlock switches		Accessory
Pre-cabled connection	M12 connector (Coding A) connection	Replacement dedicated transmitter
XCSDM3/4●●●02/05/10	XCSDM3/4●●●M12	XCSDMT



6

Dual Dimensions: INCHES
Millimeters

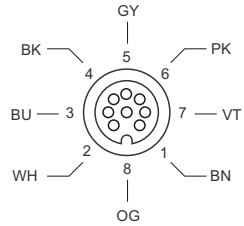
Pre-wired female connectors
XZCP29P12L●



Wiring diagram

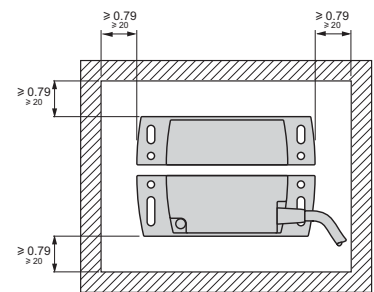
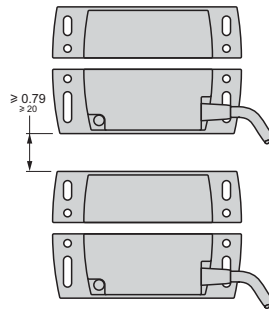
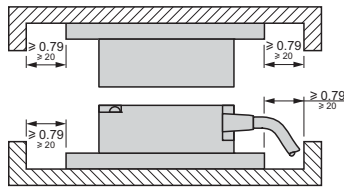
M12 pre-wired female connector

XZCP29P12L●



Mounting

XCSDM3/DM4



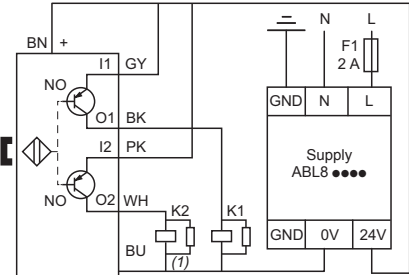
Dual Dimensions: INCHES
Millimeters

Wiring diagrams

Category 3 (this wiring diagram can achieve SIL 2/PL=d, category 3)

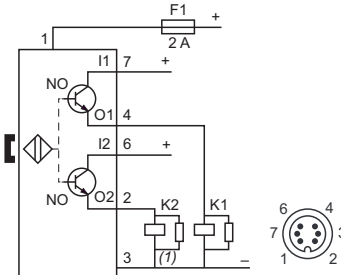
Pre-cabled connection

XCSDM3791●●



M12 connector (A coding) connection

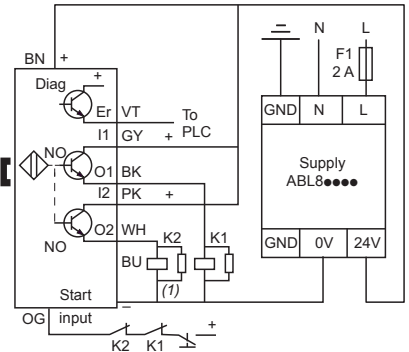
XCSDM3791M12



SIL 3/PL=e, category 4

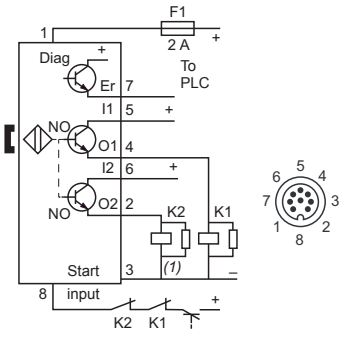
Pre-cabled connection

XCSDM4801●●



M12 connector (A coding) connection

XCSDM4801M12

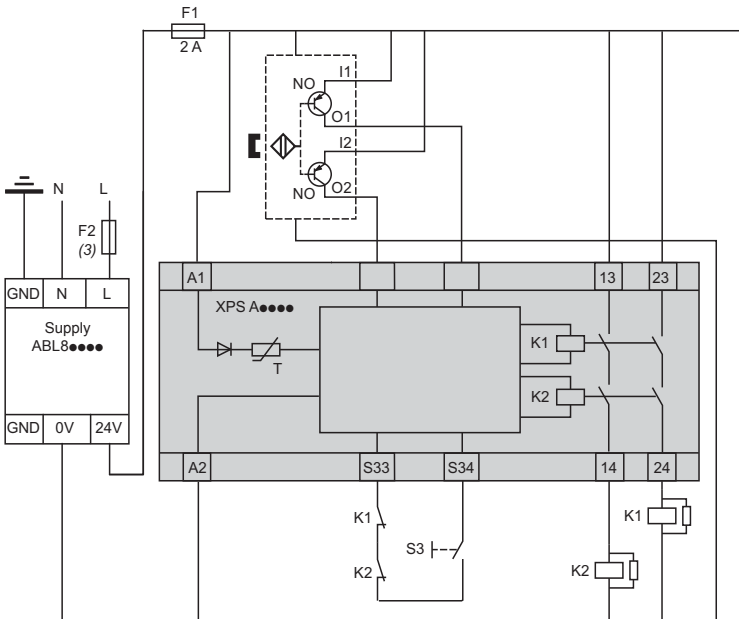
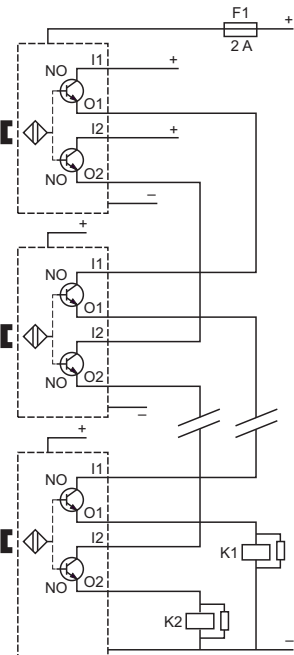


Series mounting non-contact safety interlock switches (2)

XCSDM3791●●

Wiring to SIL 3/PL=e, category 4 with Preventa safety relay module

Example: XCSDM3●●●● + XPSAFL5130



(1) Mechanically linked contacts

(2) Maximum series mounting: 32 maximum with 6.6 ft. (2 m) long cable.

(3) 2A maximum

